Mamiya RZ67 PROFESSIONAL

REPAIR MANUAL

Mamiya
CAMERA CO., LTD.
TOKYO, JAPAN

R.M.82-9-RZ

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1

OUTLINE OF MECHANISM

Learning and understanding this chapter well will make you a certain level of competence and familiarity with RZ67 camera and it will be very useful for your repair works.

1-1 Mirror charge

Arabic numeral in a circle indicates order of mirror charge operation.

(Fig. 1)

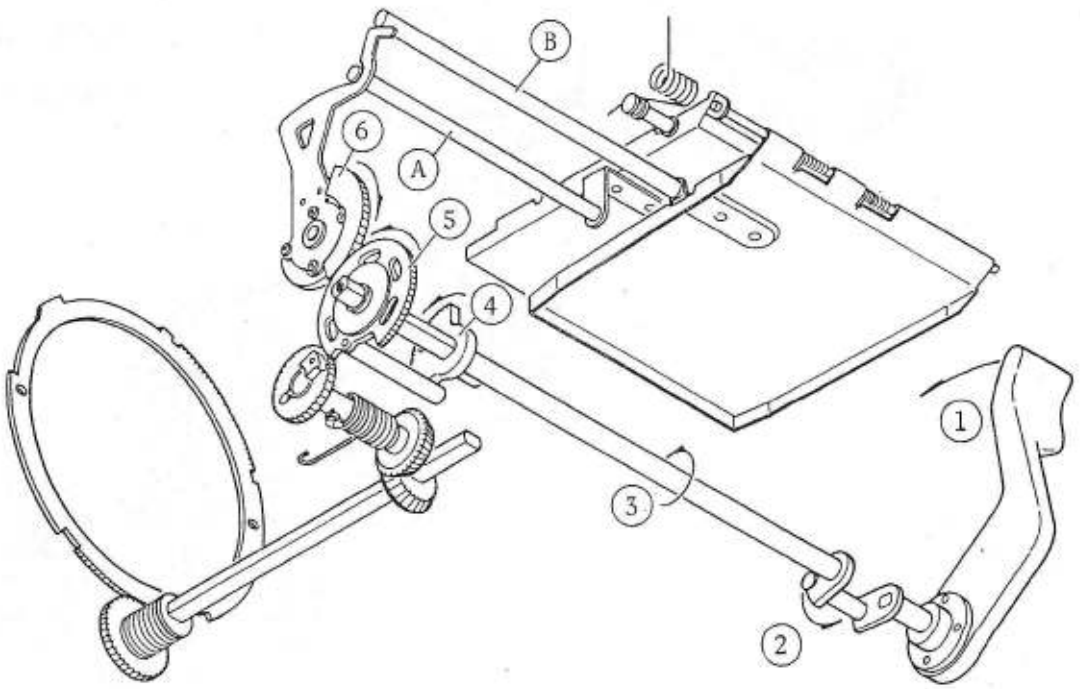


Fig. 1

1. As (6) gear is turned clockwise, the mirror-raising lever which holds up (A) and (B) comes down.
   Therefore, (B) and (A) return their viewing position.

(4) : 1st W gear
(5) : 1st M gear
(6) : Mirror-raising gear
(A) : Mirror holder
(B) : Light interception plate

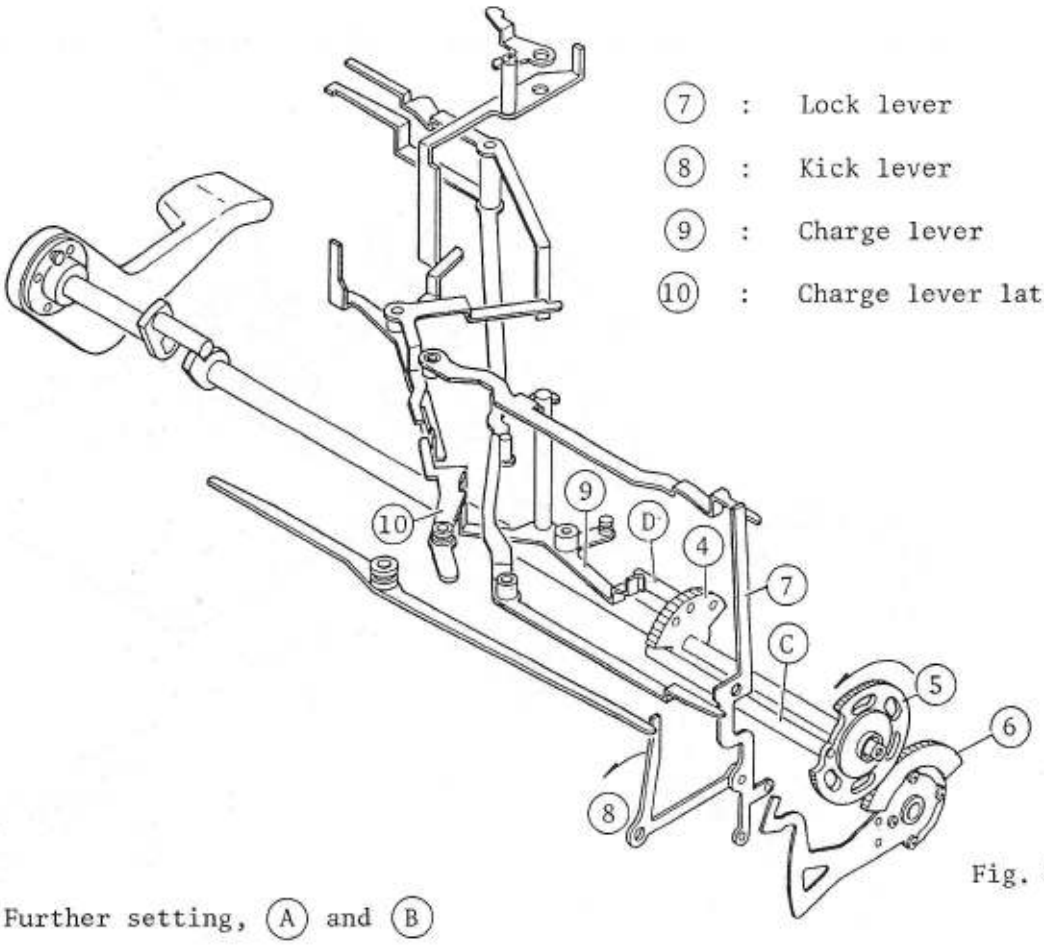


Fig. 2

2. Further setting, (A) and (B) are completely charged by the (C) pin of the (5) engages with recess of the (7) .

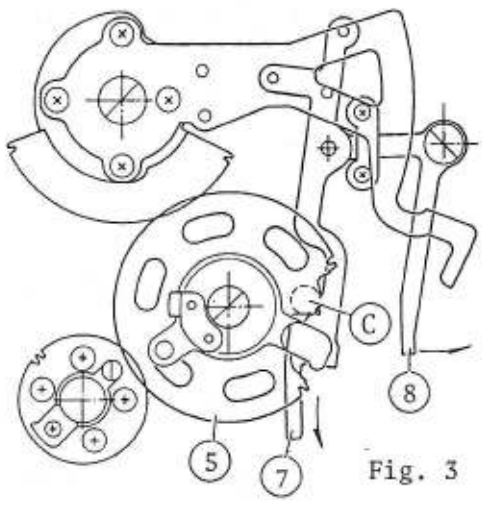


Fig. 3

3. When the cocking lever is returned from fully cocked position, (5) gear slightly rotates clockwise, so that (7) is pushed down by (C) pin. Simultaneously (8) moves in direction of the arrow.

4. When (4) rotates in direction of the arrow, end of the (9) is pushed by (C) . So, other end of the (9) is locked by the latch (10) .

1-2 Charge of drive spring and shutter cock

1. (12) drive spring is wound when (11) idle gear is rotated in direction of the arrow by (5) .
2. When (11) rotates, (15) rotates in direction of the arrow through (13) and (14) straight bevel gears.
3. Then, (16) is rotated in direction of the arrow so that Shutter is cocked.

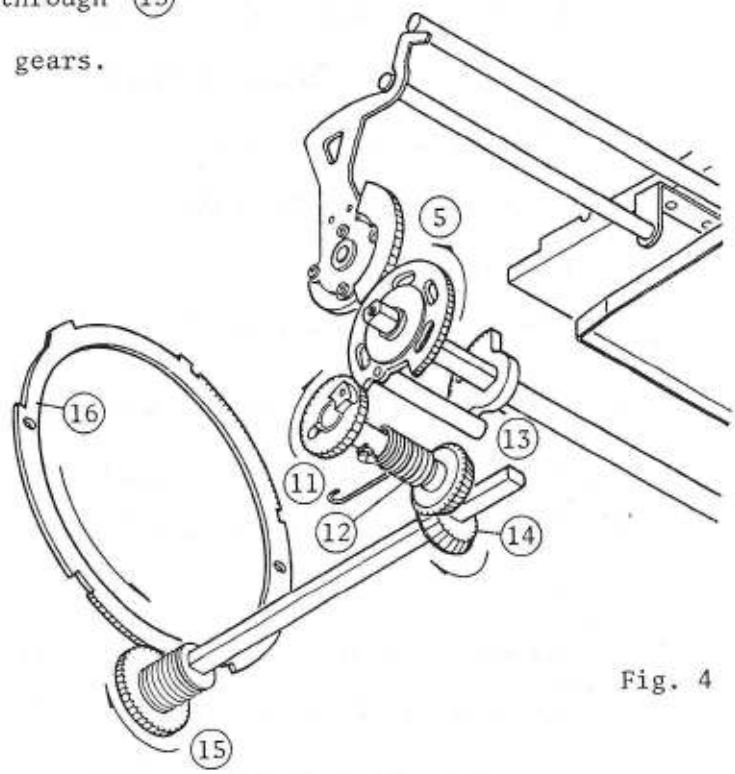


Fig. 4

(11) Idle gear
(12) Drive spring
(13) (14) Straight bevel gear
(15) Cocking gear
(16) Cocking ring

1-3 Mirror-up prevention mechanism in middle of cocking

1. (17) engages with 1st tooth of (18) when cock the cocking lever slowly.
   In this case, if the cocking lever is returned in middle of cocking, (17) prevents backward rotation of (5) gear to maintain the mirror holder at the viewing position.
   Also (17) is locked by (19) .

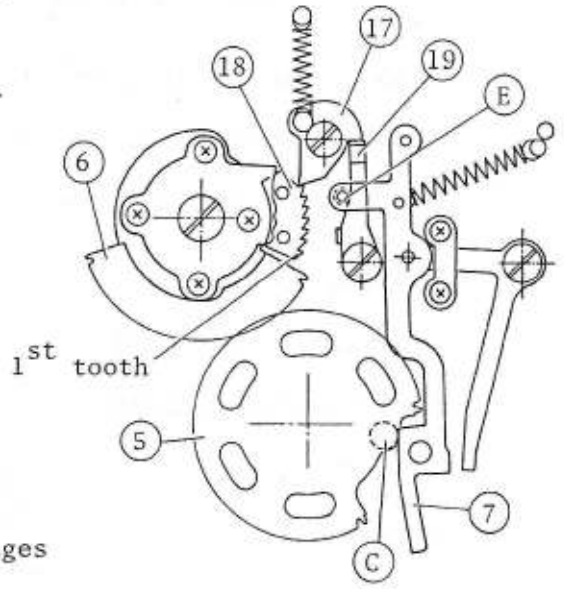


Fig. 5

2. Further cocking, when (17) disengages from last tooth of (18) , (C) pin of (5) will be just before locking. (Fig. 5)
   Although return the cocking lever at this point, the backward rotation of (5) is prevented by (17) because (17) is locked by (19) , so that the mirror holder is maintained at viewing position.

3. Further cocking, when the (C) pin is locked with (7) , top of (7) is pulled by its spring. Consequently (19) is disengaged from (17) by means of the (E) pin of (7).
   Now this function is finished.

1-4 Electromagnetic MC Shutter release and mechanical Shutter release

A. Electromagnetic MC Shutter release

1. When the Shutter release selector is set to the MC release position, the cam turns on the SO power supply switch by pressing the contact.

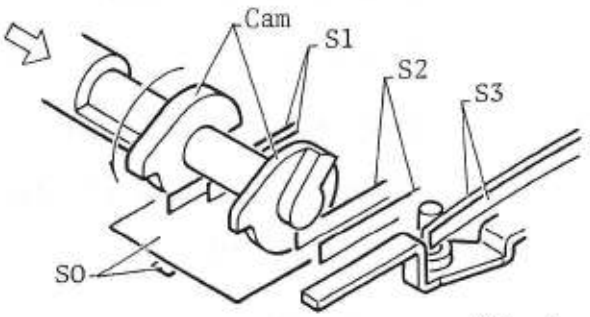


Fig. 6

2. When the Shutter button is depressed 0.5^{mm}, the S1 circuit switch is turned on and then current flows into circuits.

3. When it is depressed 2^{mm}, the S2 MC-operation switch is turned on. Then the (20) is pushed by the MC.

4. When (20) is pushed by the MC, (10) is pushed in direction of the arrow to release the (9) charge lever. Consequently, mechanical operation starts and then Shutter is operated.

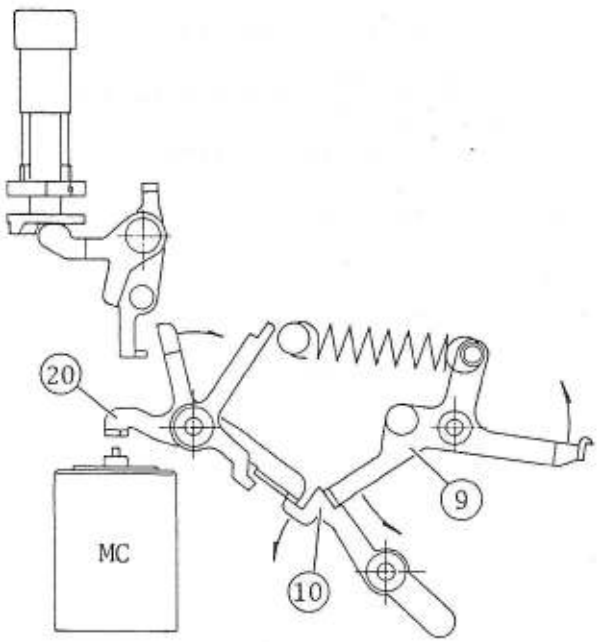


Fig. 7

B. Mechanical release

1. Set the Shutter release selector to mechanical release position.
2. When the Shutter release button is pressed, (22) is pushed by (21) .
3. As the (20) is pushed in direction of the arrow by (22) , (10) is pushed in direction of the arrow. So, (9) is released and mechanical operation starts.

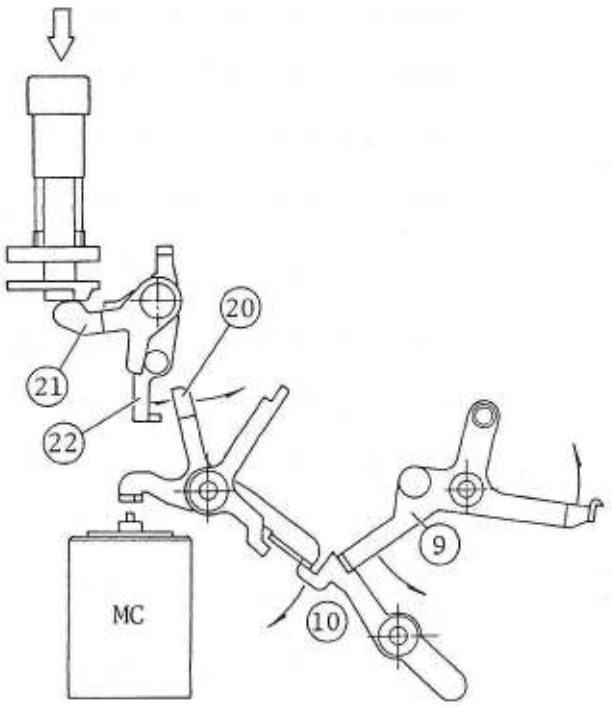


Fig. 8

1-5 Mirror-up and Shutter release

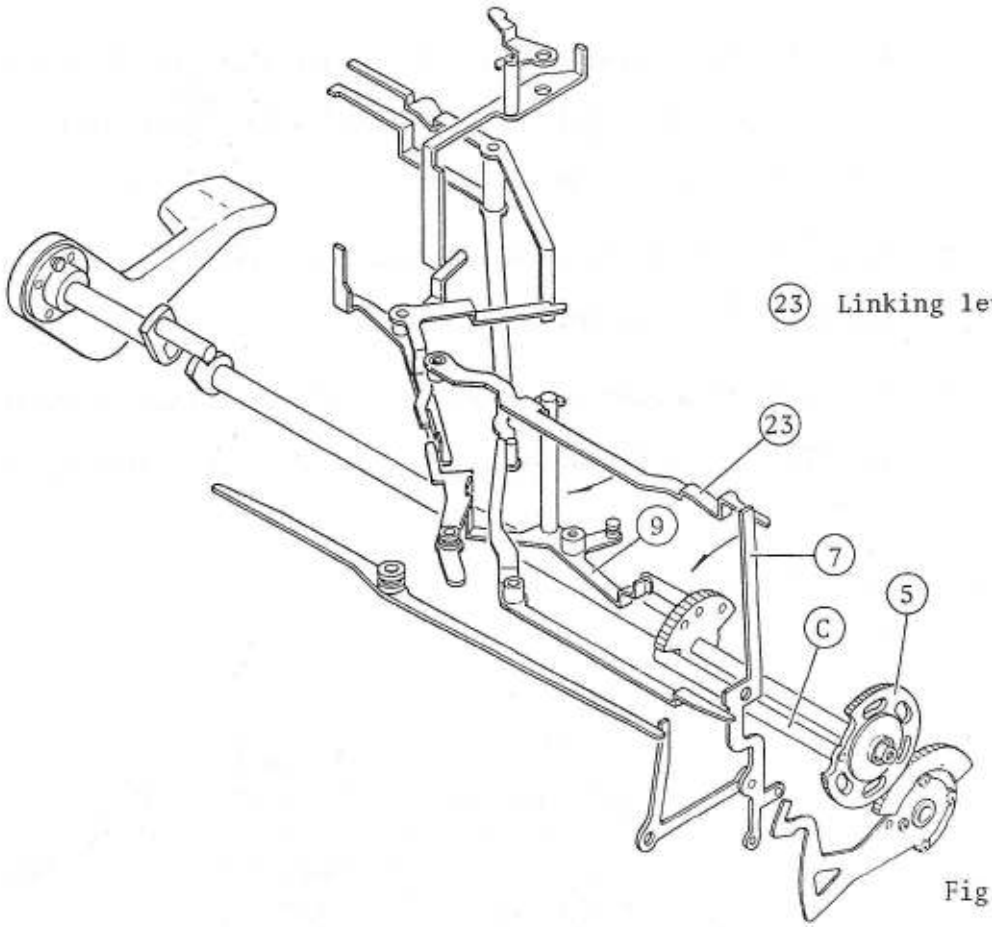


Fig. 9

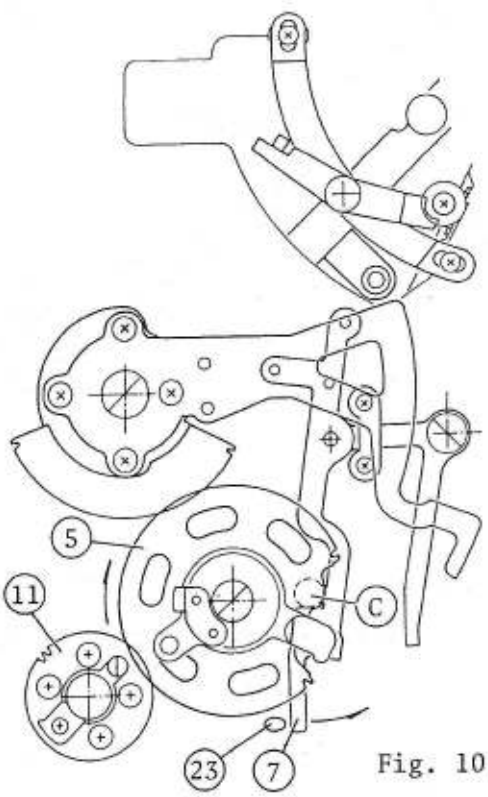


Fig. 10

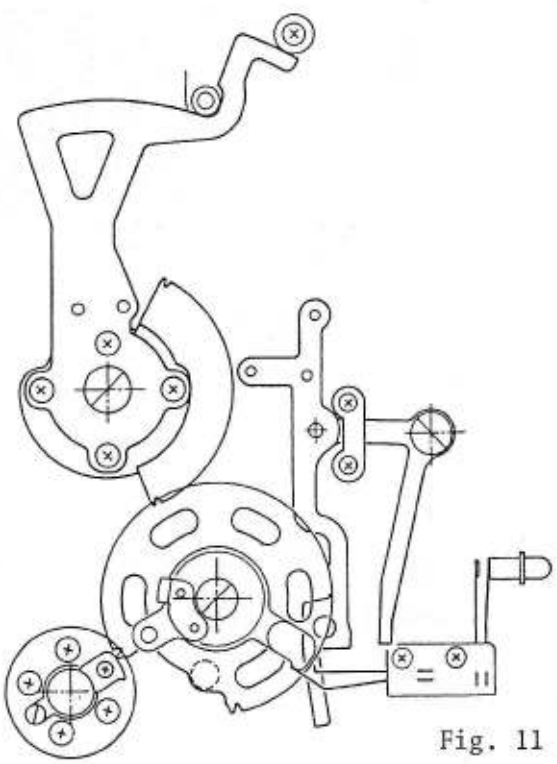


Fig. 11

A. Mirror-up

1. When (9) charge lever begins to operate with the Shutter release button depressed, (23) that is linked with (9) is pushed in direction of the arrow and kicks (7) .
2. As (C) pin of (5) is released from (7) , (5) is rotated clockwise through (11) by force of (12) drive spring.
3. (6) is rotated counter clockwise by (5) , so that the mirror holder and light interception plate are raised by the lever of (6) .

B. Shutter release

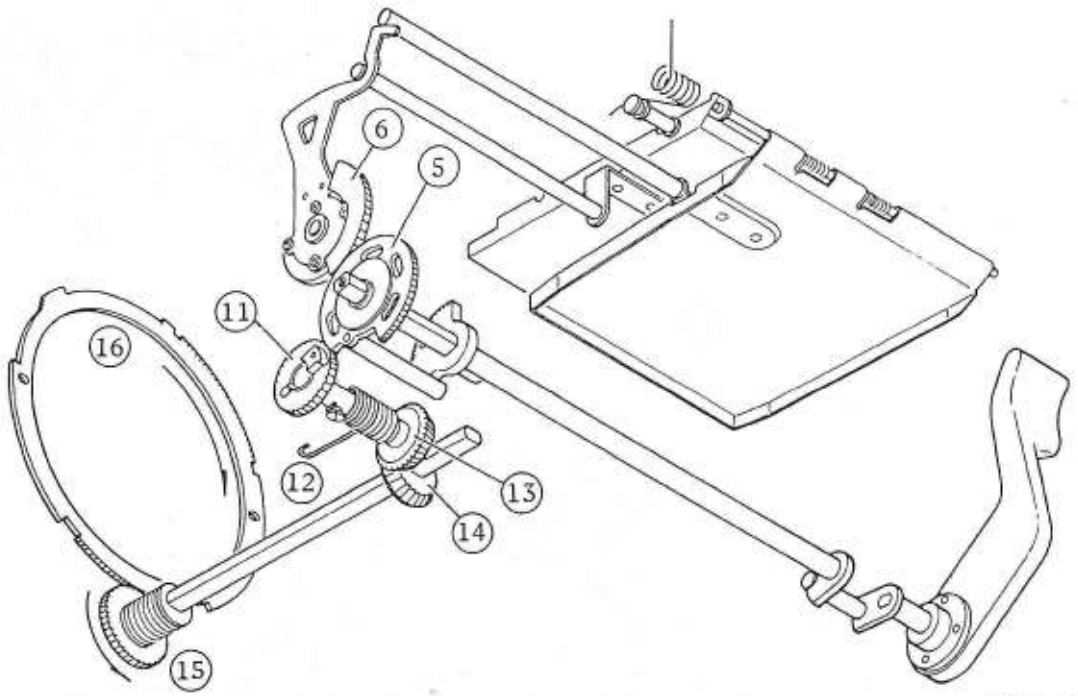


Fig. 12

(15) is rotated through (13) and (14) by the force of (12) drive spring and (16) is also rotated in direction of the arrow, so that Shutter is released.

1-6 Maintaining circuit power supply and S3 switch

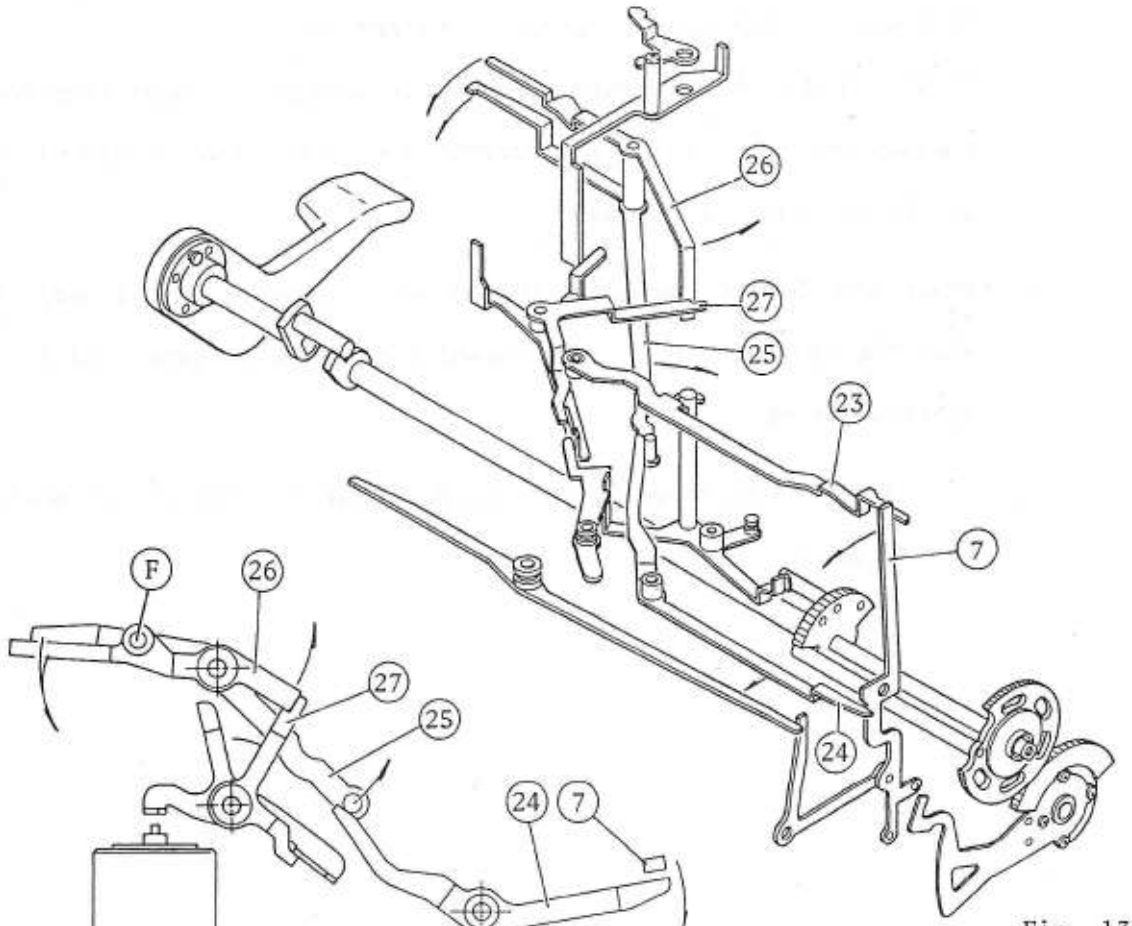


Fig. 13

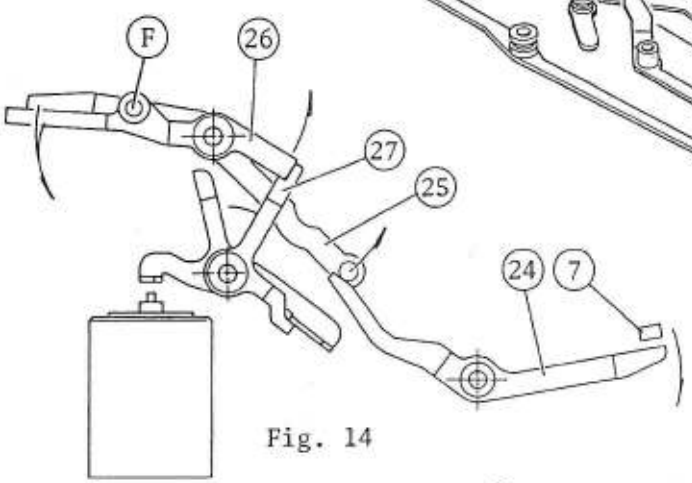


Fig. 14

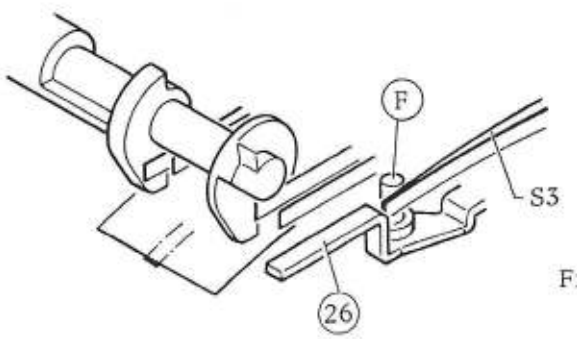


Fig. 15

1. When Shutter release button is depressed and (7) is kicked by (23) , (24) is pushed in direction of the arrow by (7) .
2. (25) is pushed up by the end of (24) and (26) follows up (25) .
3. When (26) is moved in direction of the arrow, (27) is moved by its spring in direction of the arrow to hold (26) .

4. While (26) is locked by (27) , the switch contacts is pushed by the (F) pin, so that the S3 switch is turned on.
   If the S1 switch is turned off by detaching your finger from the Shutter release button, the current continues to flow into circuits by the S3 switch is closed.

5. While the Shutter operates, the S3 switch is kept in switched on. When the Shutter closes, the signal for the MC is generated to operate the MC.

6. (26) lever is released by the MC operation, so that the S3 switch is turned off.

1-7 Film winding mechanism (camera body)

A. Rotation of film winding coupler

1. When (1) cocking lever is cocked, (3) and (4) are rotated.
2. As (5) four pawls are engaged with (4) gear, (6) gear is rotated in direction of the arrow.
3. (8) and (9) couplers are rotated through the each straight bevel gear in direction of the arrow.
4. When the roll film holder is in horizontal format, (8) coupler is interlocked to advance the film and (9) coupler is available when the holder is in vertical.

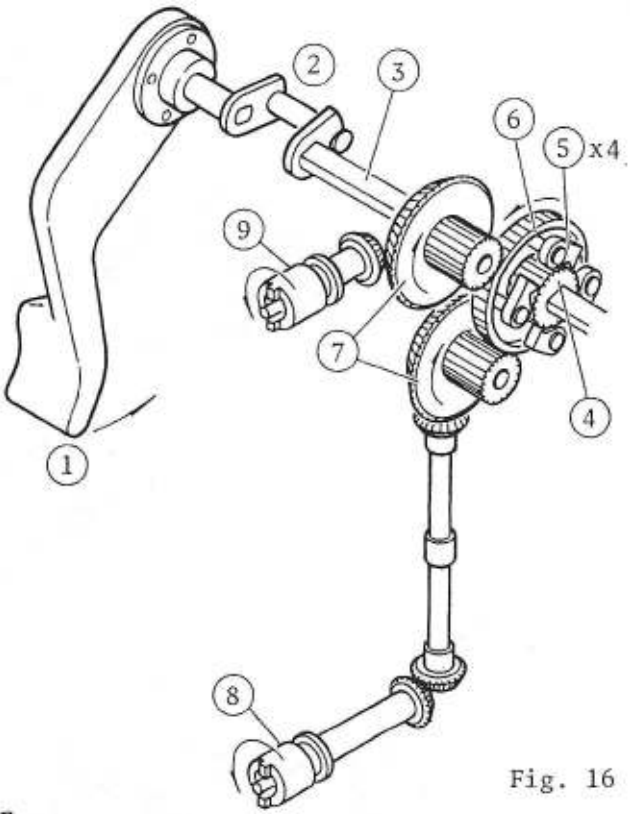


Fig. 16

B. Double winding prevention mechanism

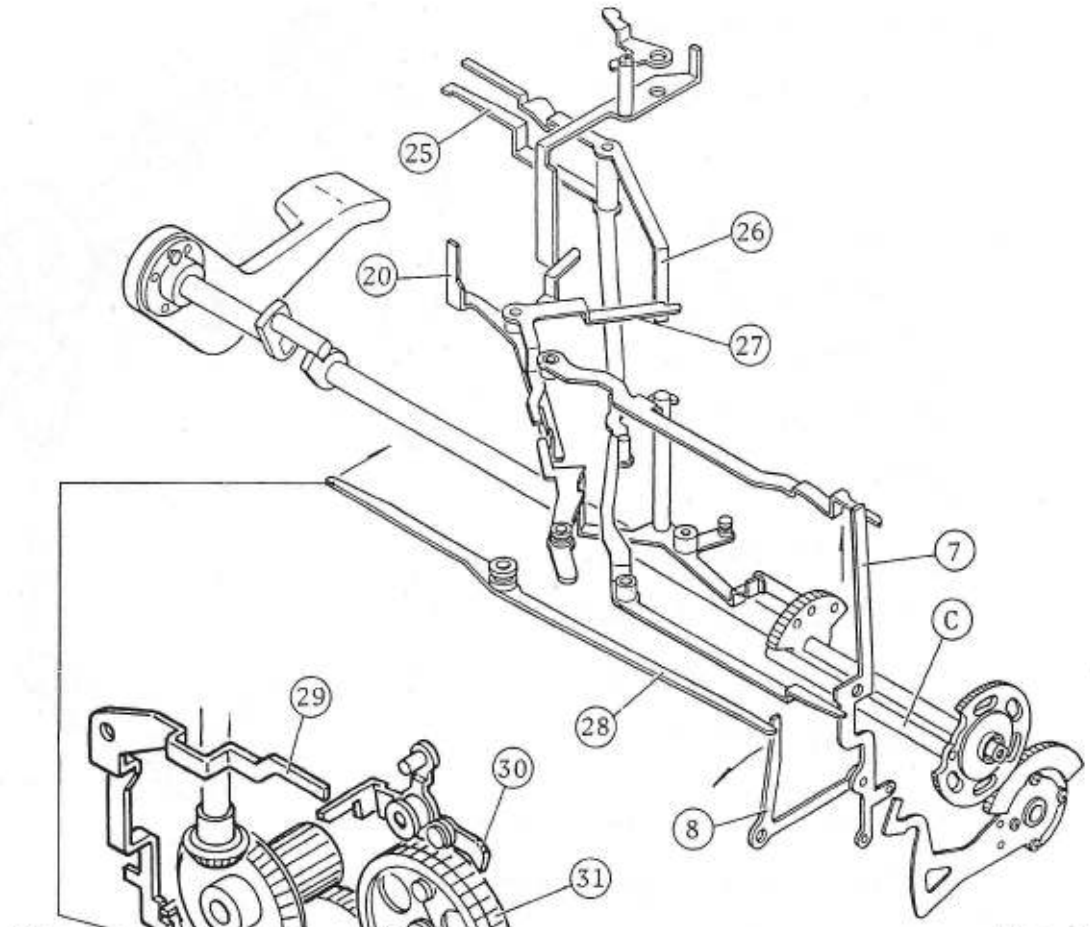


Fig. 17

Fig. 18

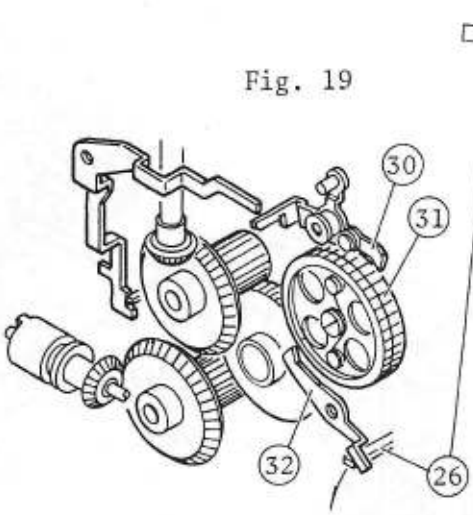
1. Function of (30) winding-stop lever

   a. When the set lever is returned from its maximum cocking position after loading a film into the holder, (7) is pushed down by (C) pin, so that (28) is kicked in direction of the arrow by (8) .

   b. As the other end of (28) which is linked with (29) is moved inward, (29) is free and (30) winding-stop lever engages with (31) ratchet wheel to prevent the double cocking.

2. Function of (32) winding stop pawl

Fig. 19



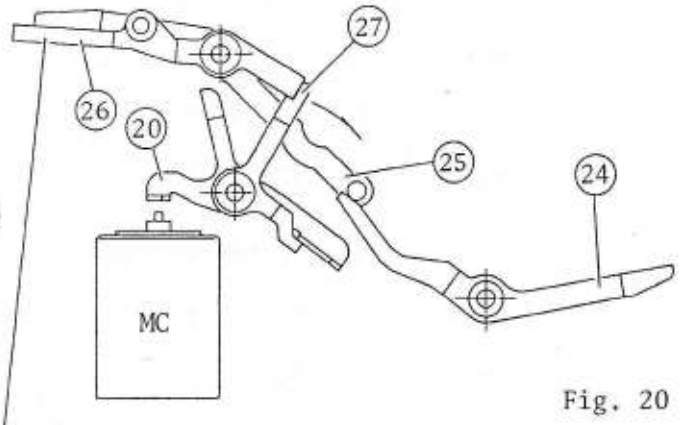


Fig. 20

a. When the Shutter is released, (30) is detached from (31) .
As (26) which controls operation of (32) winding-stop pawl is moved in direction of the arrow, (32) engages with ratchet wheel. So that the double cocking is prevented while the Shutter operates.

b. When the Shutter is closed, the MC operates to release (26) .

c. At this time, (32) is detached from (31) by the end of (26) pushes (32) , so that the next cocking can be possible.

NOTE: You can observe and understand the functions in releasing the Shutter at Slow Shutter speed 2^{sec} or 4^{sec}.

(32) : Winding-stop pawl

1-8 Connecting operation of signal bars

1. When the cocking lever is pressed down, end of the (36) in the holder engages with the slit of (37) .

2. Then the signal bar of the holder is pushed by the other end of (36) and is thrusted out to push the signal bar of the camera body.

3. (30) winding stop lever engages with (31) ratchet wheel by (9) is moved upward and then the S7 switch is turned off, so that it can be possible to release the Shutter.

4. With the Shutter released, the upper and lower signal bars is thrusted out by (35) is kicked with (34) and then (9) is driven downward.

5. As the signal bar of the holder is pushed, (36) is moved. And then the other end of (36) is disengaged out of the slit of (37).

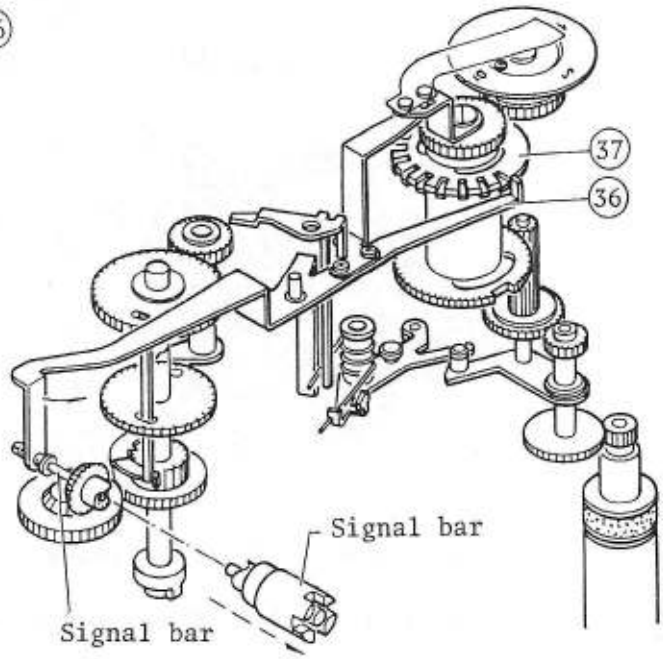


Fig. 21

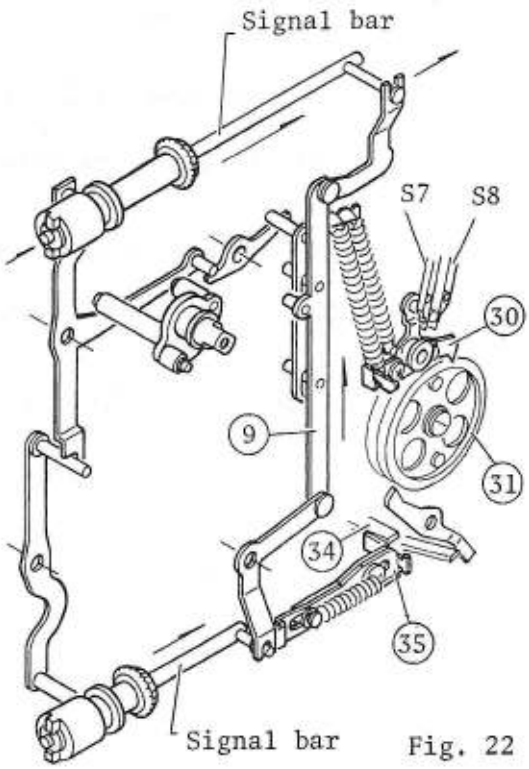


Fig. 22

6. On the other hand (29) is moved in direction of the arrow to disengage (30) out of the slit of (31) and then the S7 switch is turned on and the S8 switch is turned off.

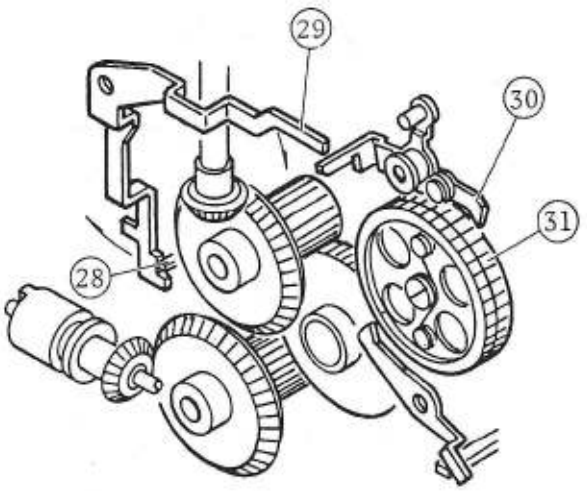


Fig. 23

1-9 Mechanism of R-M lever

A. Mechanism of multi-exposure

1. When R-M lever is shifted to "M,"
   (1) pushes down (2) .
2. (A) top of the (2) is moved in direction of the arrow, so that (19) coupler goes into the body.
   On the other hand, (B) end of the (2) pushes (3) , so that (20) coupler also goes into the body.

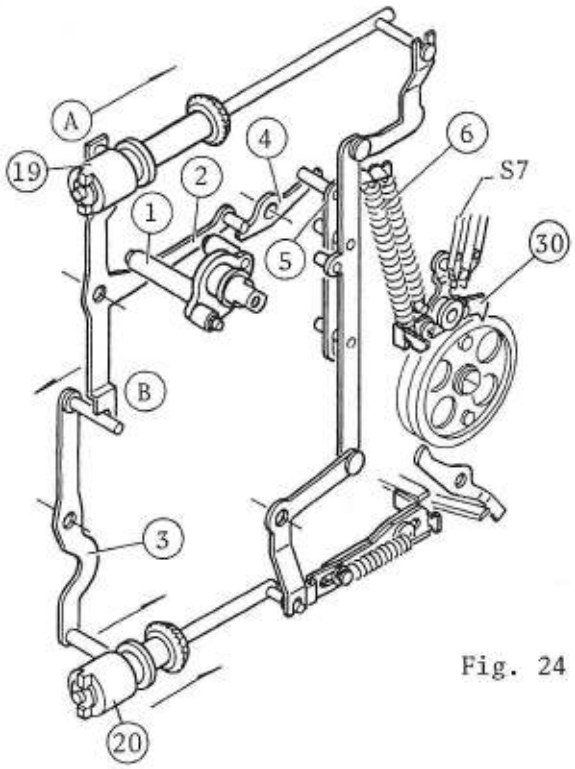


Fig. 24

3. In this condition, when the cocking lever is cocked,
   film is not advanced because the both couplers between the body and the film roll holder are without linking.
   However, the mirror is charged and shutter is cocked, so that the multi-exposure will be possible.
4. Also, when (2) is pushed down, (5) is lifted up by (4) .
5. As (6) spring tension is increased in the above case, (30) winding-stop lever is operated by the spring when the set lever is set.
6. S7 switch is turned off, so that releasing shutter will be possible.

NOTE: Signal-bar function operates in multi-mode.

B. Revolving mechanism

B-1. When shifting R-M lever to "R"

1. As (2) is pushed down by (7) , the both couplers (19) and (20) go into the body just same as the M-mode.

2. As (8) is also pushed by (7) , (9) is lifted up. The both ends of (9) are moved in direction of the each arrow, so that (21) and (22) signal-bars are withdrawn into the body.

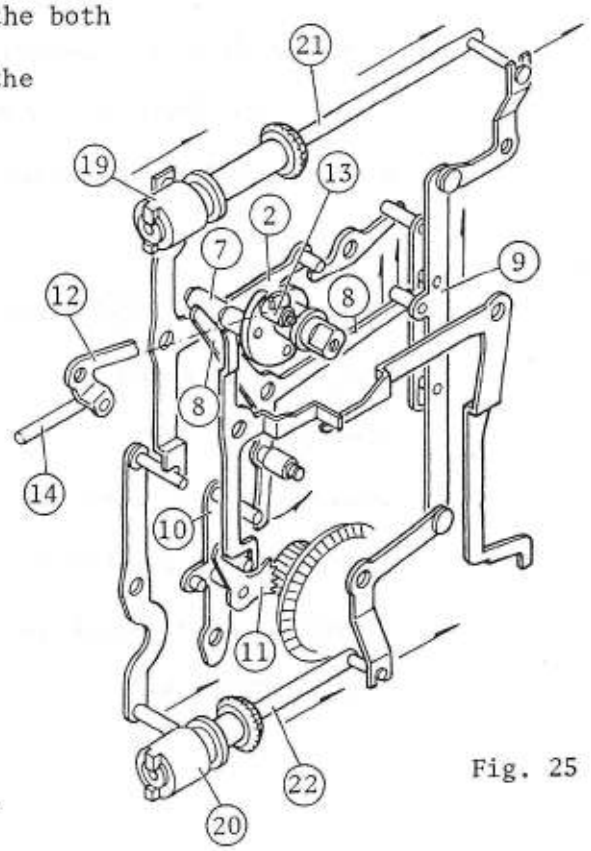


Fig. 25

3. When the lower end of (8) is moved in direction of the arrow, (10) is followed by the spring to engage (11) with the inner gear of the bevel gear.

4. On the other hand, (12) is pushed by (13) , so that (14) also goes into the body.

5. Now the revolving will be possible.

B-2. Release of R-mechanism

1. By shutter release button

a. When the shutter release button is depressed,

(16) R-lock lever is moved in direction of the arrow by (15) R-release lever.

b. When the top of (16) that locks (1) is moved in direction of the arrow, the R-M lever cam turns counter clockwise to release the revolving lock automatically.

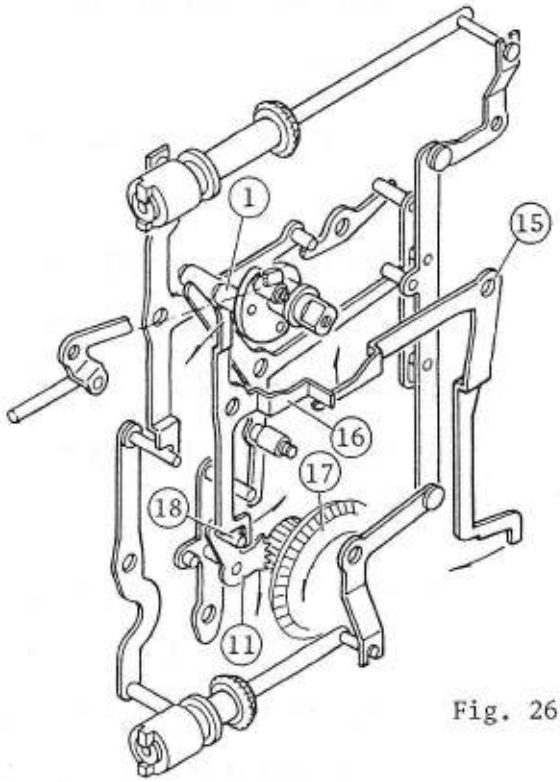


Fig. 26

2. By cocking lever

a. When the cocking lever is cocked,

the (11) is moved in direction of the arrows by (17) is rotated counter clockwise.

c. As the (18) pin of the (11) pushes the (16) in direction of the arrow, the revolving lock is released just same as the above step.

1-10 Film advance mechanism and film counter

A. One frame advance

1. When the back cover is closed after loading the film, (38) is pushed by the back cover and (44) gear meshes with (45) gear.

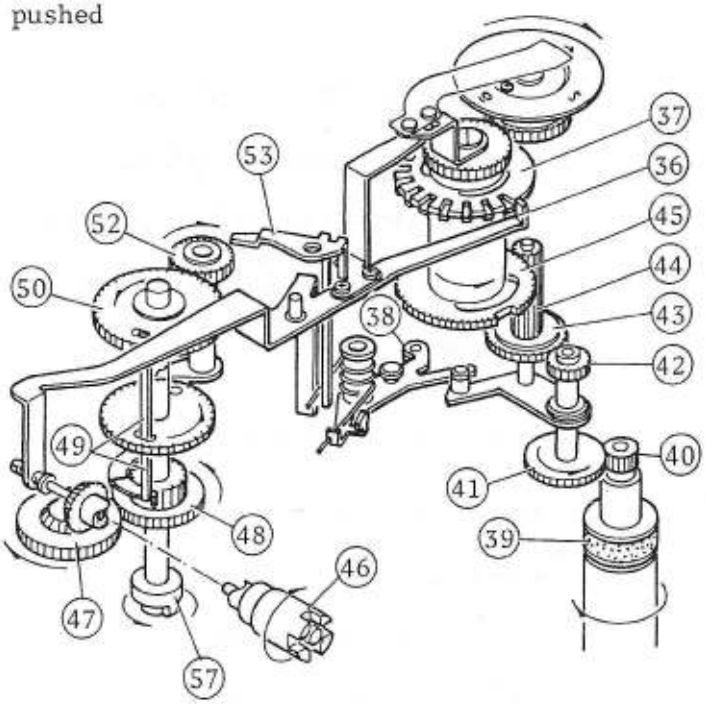


Fig. 27

2. When the cocking lever is depressed (46) film advance coupler is rotated and (48) gear is rotated through (47) bevel gears.
(49) clutch is interlocked with (48) gear, so that (51) take-up spool stud is rotated in direction of the arrow to advance the film.

3. When the film is advanced, (39) friction roller is rotated in direction of the arrow and (45) is rotated through (40) to (44) .

4. (37) dividing device that has the same axle with (45) gear is rotated counter clockwise and the end of (36) is engaged with the slit of (37) .

5. On the other hand, the film counter is rotated clockwise and the figure appears in middle of the window.

6. When (36) is engaged with (37) , (53) stop lever is engaged with (52) gear to stop rotation of (50) clutch gear.
Therefore, (49) clutch is disengaged from the (48) to stop rotation of (51) , so that the one frame film advance is finished.

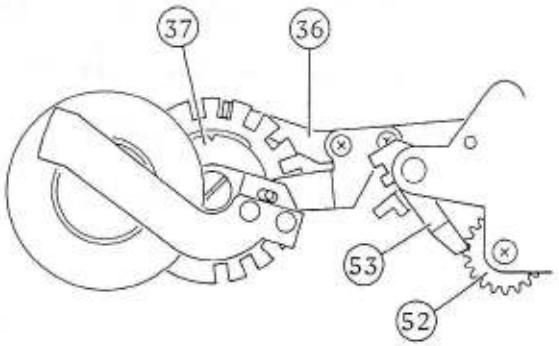


Fig. 28

B. Release of winding stop

1. When the shutter is released, (36) and (53) are disengaged as the end of (36) is pushed by the signal bar.
So that the next film advance can be possible.

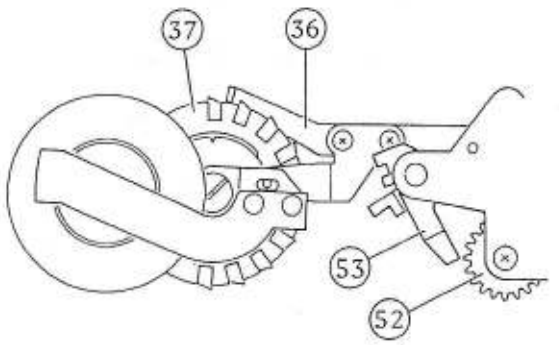


Fig. 29

1-11 Roll film holder lock mechanism

A. Outer frame lock mechanism

1. When the dark slide is inserted into the slot, (1) is released out of (2) recession.
   The film holder can be removed after moving the holder lock knob as far as it will go in the direction of the arrow.

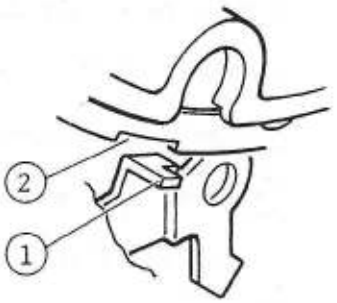


Fig. 30

2. Safety lock mechanism

   Removing the holder from the camera body is impossible without inserting the dark slide because (1) is engaged with (2) recession.

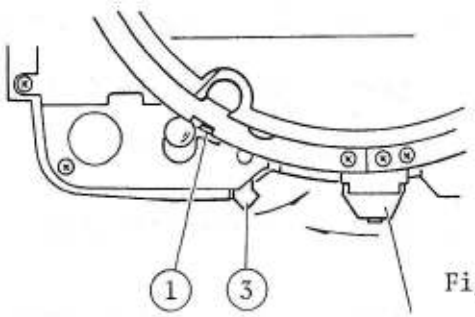


Fig. 31
Holder-lock knob

NOTE: However, if you must remove the holder without the dark slide in place, (1) can be released by pulling (3) lock release lever toward the holder lock knob, holding the lever there, and then moving the lock knob.

B. Dark slide lock/unlock mechanism

When the holder is removed from the camera back, the dark slide is automatically locked in the holder, preventing accidental removal by (4) leaf spring engages with recession of the dark slide.
When the holder is replaced onto the camera back, the dark slide is automatically unlocked as follows:

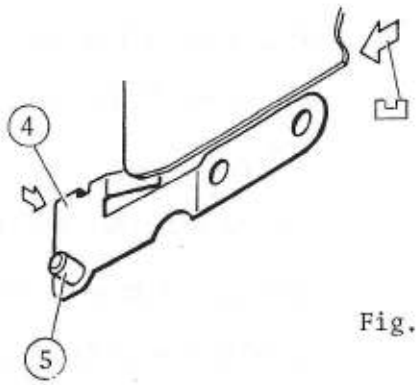


Fig. 32

1) As (5) pin is pushed by the camera back mount pin, (4) leaf spring is depressed.
2) So that it can easily be removed.

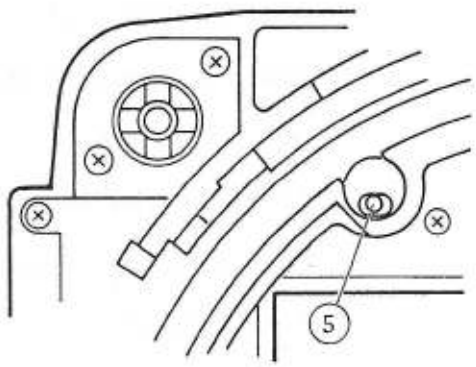


Fig. 33

However, if you must remove the dark slide without mounting the holder onto the camera back, the dark slide can be removed by depressing (5) release pin.

C. Shutter release lock by dark slide

When the dark slide is inserted after attaching the holder onto the camera back, the monitor red LED (middle) in viewfinder will illuminate by turning on the S1 switch as a reminder to withdraw the dark slide so that the S4 switch in horizontal format or the S5 switch in vertical format is turned on.
Under this condition, if the S2 switch is turned on to operate the MC, the release signal is not generated, so that the shutter will not be released.

2

DISASSEMBLY AND REASSEMBLY

Please always refer to diagrams of the ZE-X parts catalog when dis. and reassembling.

The procedures of dis. and reassembly only for six assembly parts are shown in this chapter.

2-1 Dis. and reassembly of right side plate

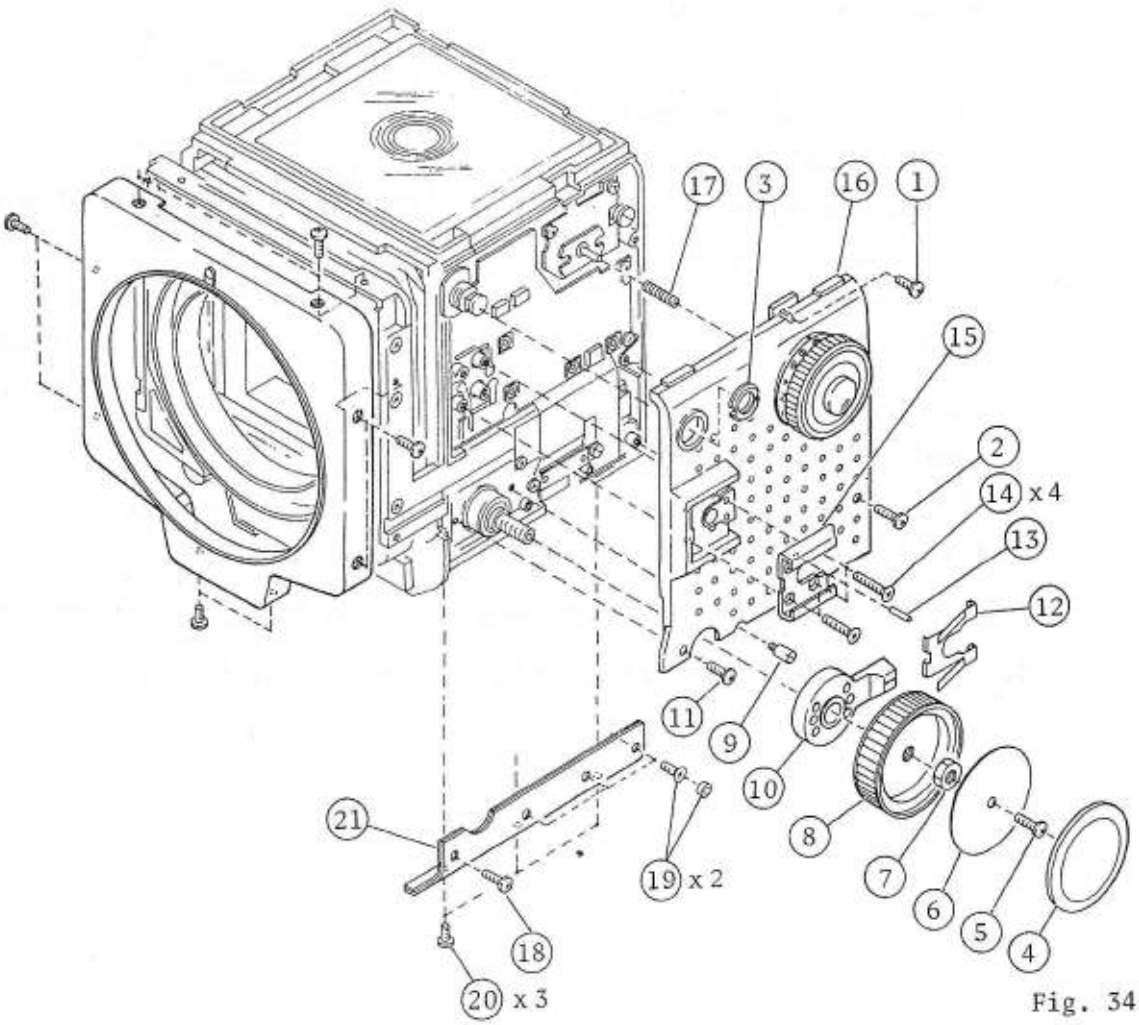


Fig. 34

A. Disassembly

1. The arabic numeral in a circle as shown in Fig. 34 indicates the procedure of disassembly.
2. When removing the hot shoe, first insert tweezers into the center groove and lift the shoe cover up.
   Then push it in direction of the arrow.
3. Set the shutter speed dial to ◉ .

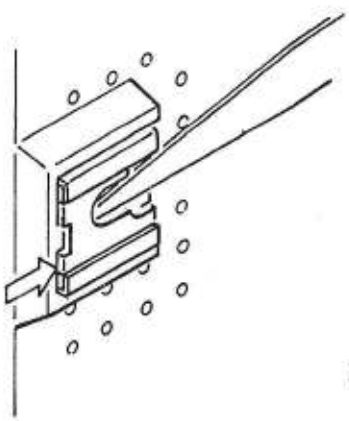


Fig. 35

B. Reassembly

Reassembly is generally the reverse of disassembly.

1. How to set the FPC-shutter-speed dial shaft to ◉ .

a. Turn on the AE-switch (outer switch) by rotating (A) SP-dial plate.

Then the (A) SP-plate should be in horizontal.

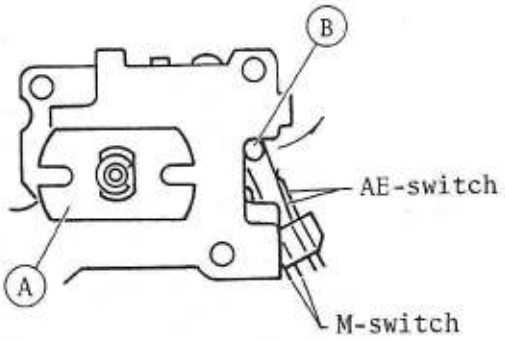


Fig. 36

b. If (B) switch lever does not move to turn the AE switch, rotate the (A) SP-plate more 180° degree.

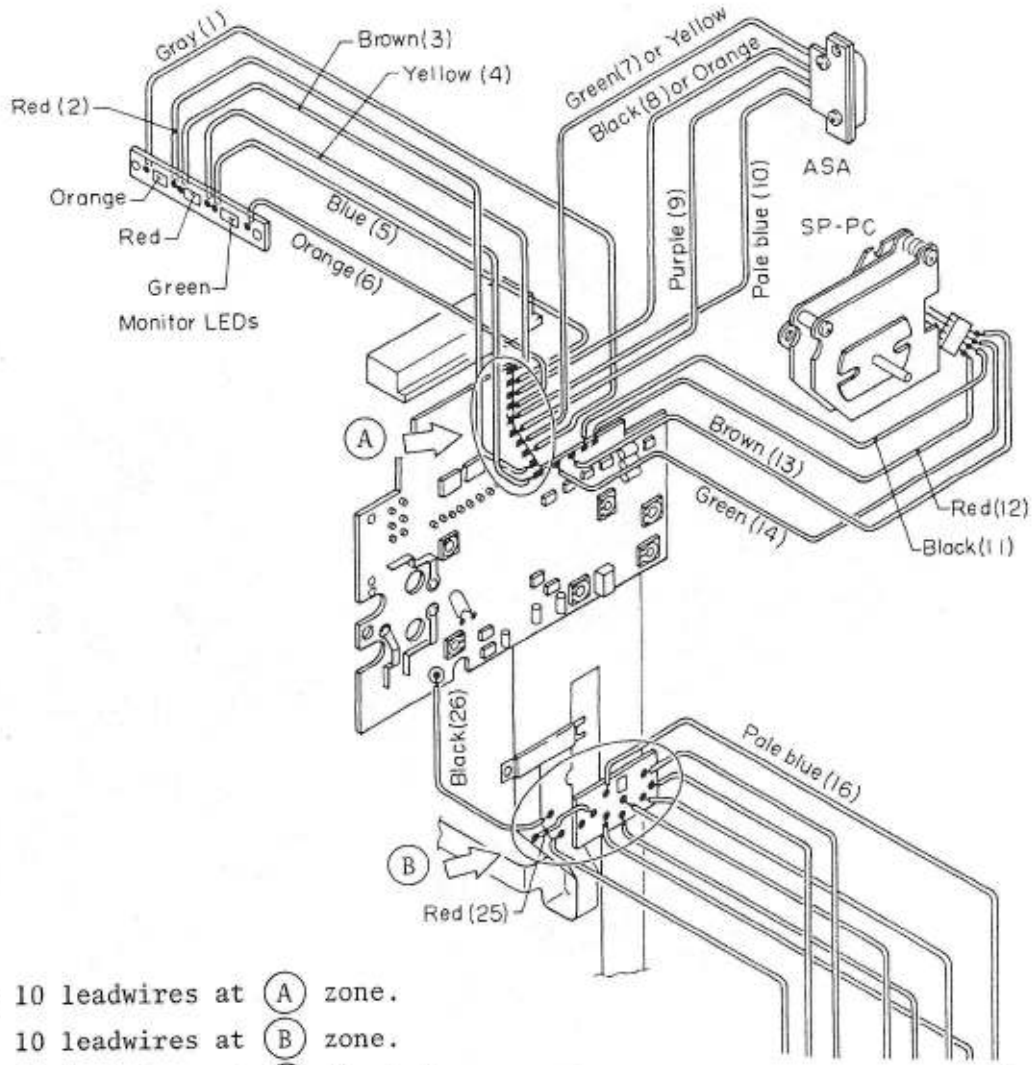
2. Set the SP-Dial of the right side plate and install it to the body.

3. When install (10) focusing knob, refer to the text "3-10".

2-2 Replacement of FPC board

A. Removal

1. Unsolder following 40 leadwires on the FPC board.



a. 10 leadwires at (A) zone.
   10 leadwires at (B) zone.
   20 leadwires at (C) PC-plate.

Fig. 37

Note: Need not unsolder four leadwires, Black (11), Red (12), Brown (13) and Green (14) from AE/M switch.

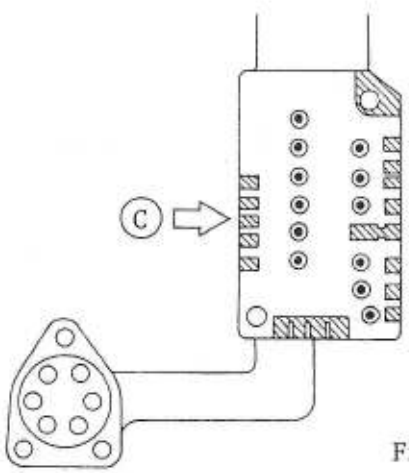


Fig. 38

2. The arabic numeral in a circle indicates the procedure of disassembly.

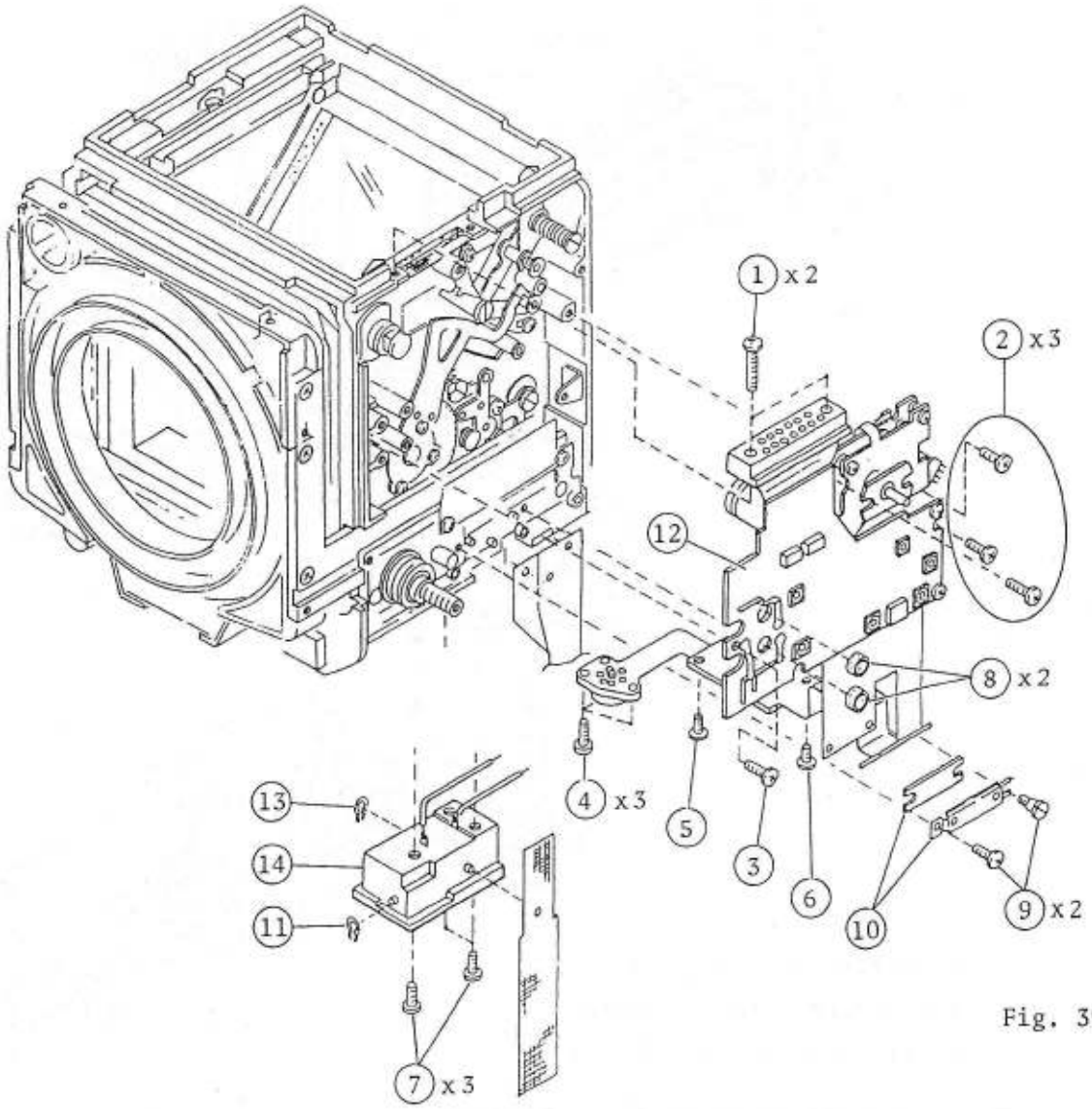


Fig. 39

Note: RZ-7 spanner will be useful when you remove the GS-snap ring.

B. Installation of FPC board

1. First check the curtain and light baffle are in place. (Fig. 40)
2. Install the FPC board into the body and get ten leadwires from ASA and LEDs unit out of the FPC as shown in Fig. 41.
3. First tighten two screws for the SP-PC plate in paying your attention for not pinching any leadwires and also the other four screws for FPC.
4. Wrap the FPC belt onto the bottom of the battery chamber and apply the GS-snap ring to the (A) pole.
5. Install the bayonet FPCs by stabbing (B) pole into the holes of the FPCs and then apply the GS-snap ring.
6. Install the battery chamber into the bottom of the camera body and tighten three screws and all other screws for FPC in bottom.

Note: When installing the battery chamber, be careful not to pinch the red (27) and black (28) leadwires.

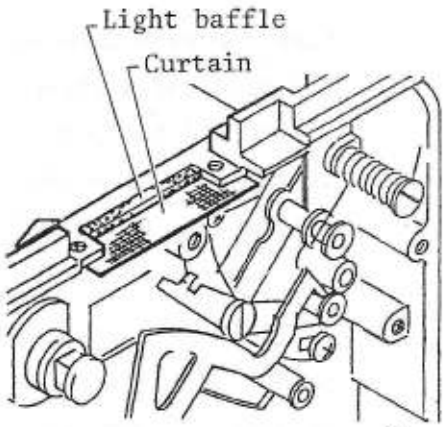


Fig. 40

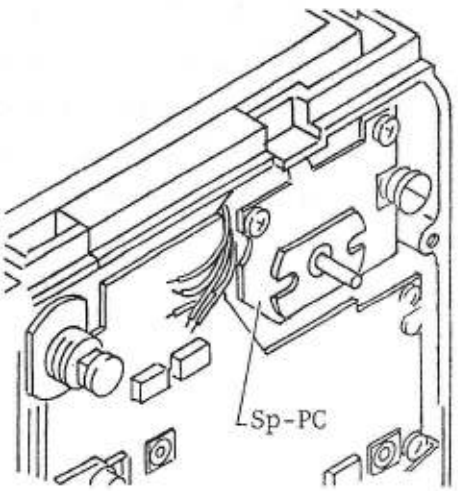


Fig. 41

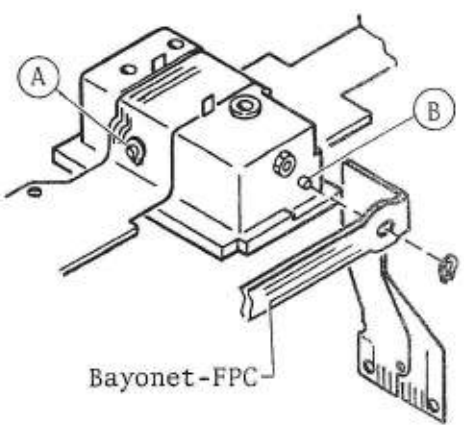


Fig. 42

7. Connection of main FPC board and bayonet ring FPCs.

a. Clean up seam face of the each FPC with the mixture (Ether and Alcohol).

b. Install the each FPC to the camera body by procedure of the numeral in a circle. (Fig. 43)

8. Solder 40 leadwires by referring to the wiring diagram.

Note: Check ON-OFF function of the S0, S1, S2 and S3 switches with an ohm tester before soldering their leadwires by referring to the text "5-3".

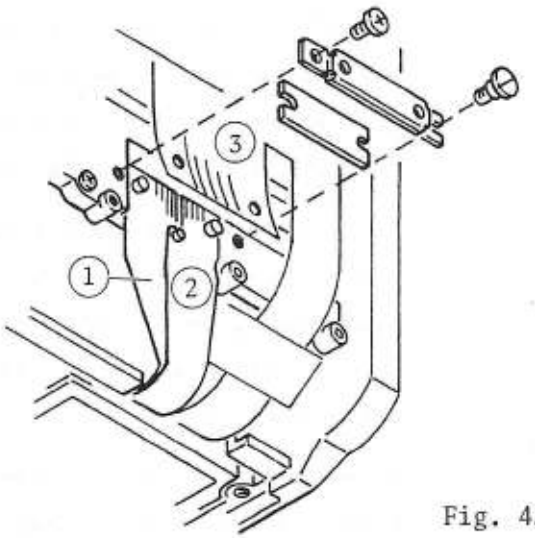


Fig. 43

2-3 Dis. and reassembly of first M-gear, idle gear etc.

A. Disassembly

1. Release the mirror by pressing the shutter button.
2. Remove the right side focusing knob, the float for the rack plate, the S9 switch and the left side rack plate stopper.
3. Carefully rotate the left side focusing knob until the (A) screw of the first M-gear base plate appear completely.
4. Arabic numeral in a circle as shown in Fig. 44 indicates the procedure of disassembly.

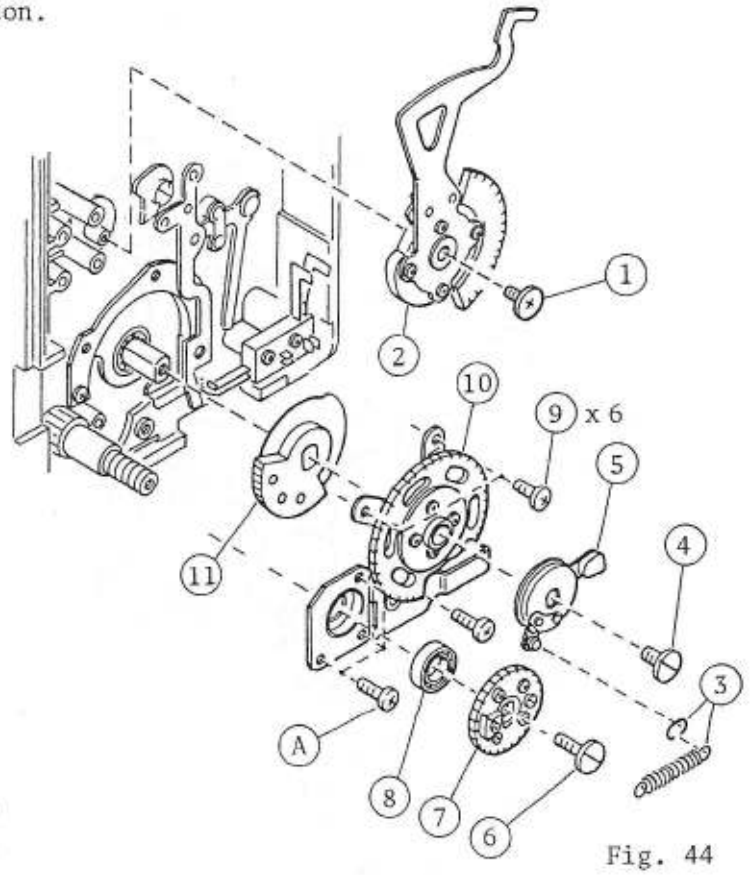


Fig. 44

B. Reassembly

Reassemble them in reverse procedure of disassembly by referring to the text "3-1".

1. Do not forget to set the M5100-15691 spring in place.
2. (5) switch lever should move smoothly by its spring.
3. Check each position of the lever (A) and (F) as shown in Fig. 47.
4. When installing the right side float, pay your attention for the each rack tooth level by referring to the text "3-3-B-4", Fig. 68.
5. After completing, check of the cocking angle should be required.

2-4 Dis. and reassembly of release switch base and bottom base plate

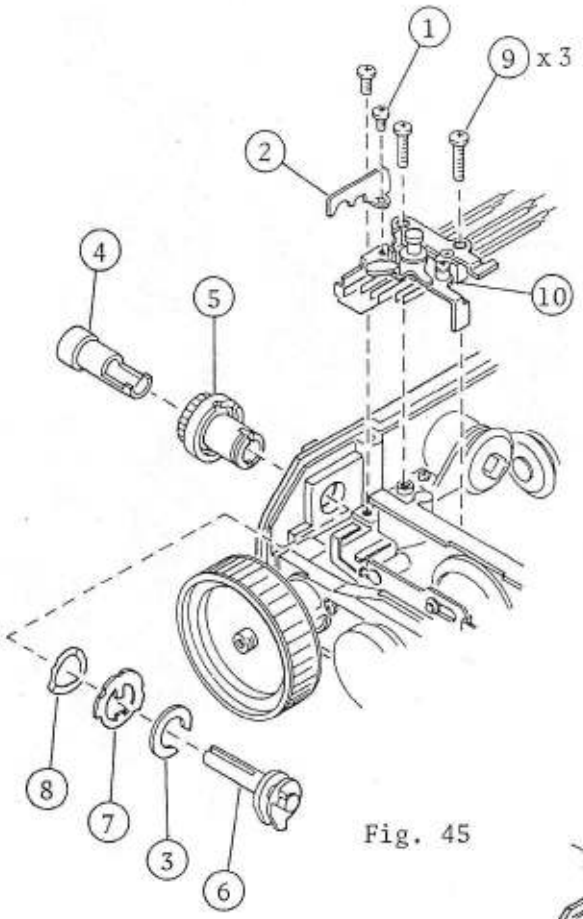


Fig. 45

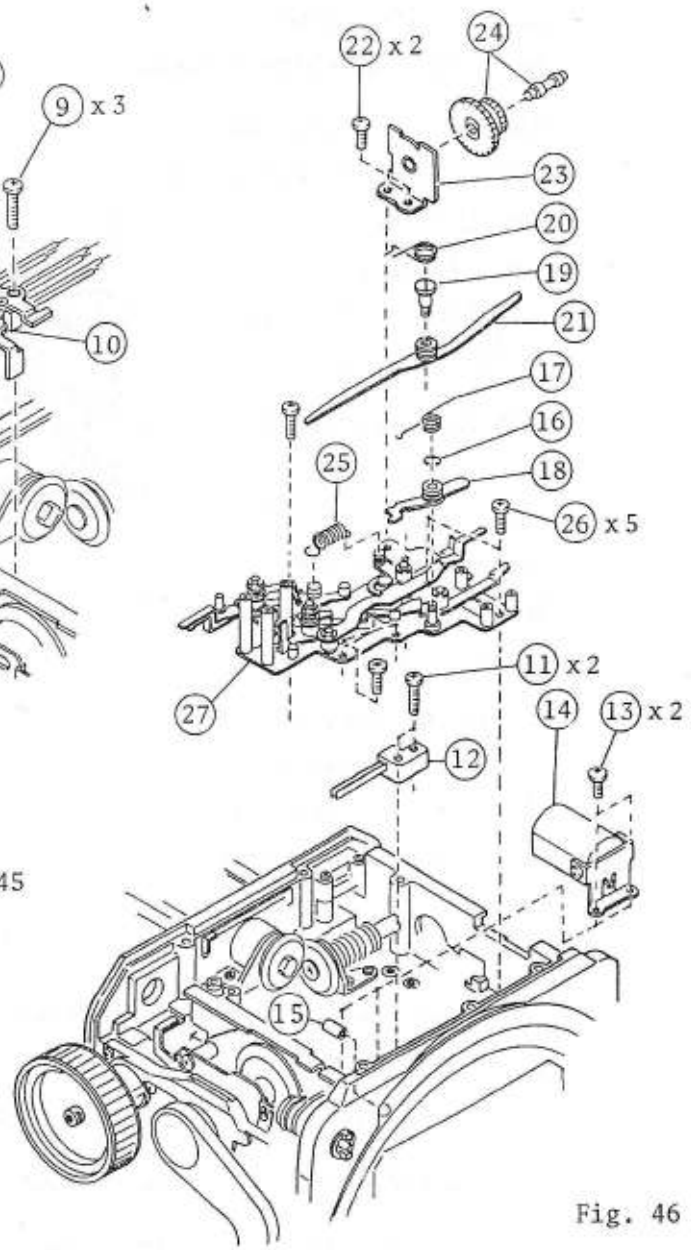


Fig. 46

A. Disassembly

1. The arabic numeral in a circle indicates procedure of disassembly.

2. Just release one side hook of (25) spring.

B. Reassembly

1. Reassembly is generally the reverse procedure of disassembly.

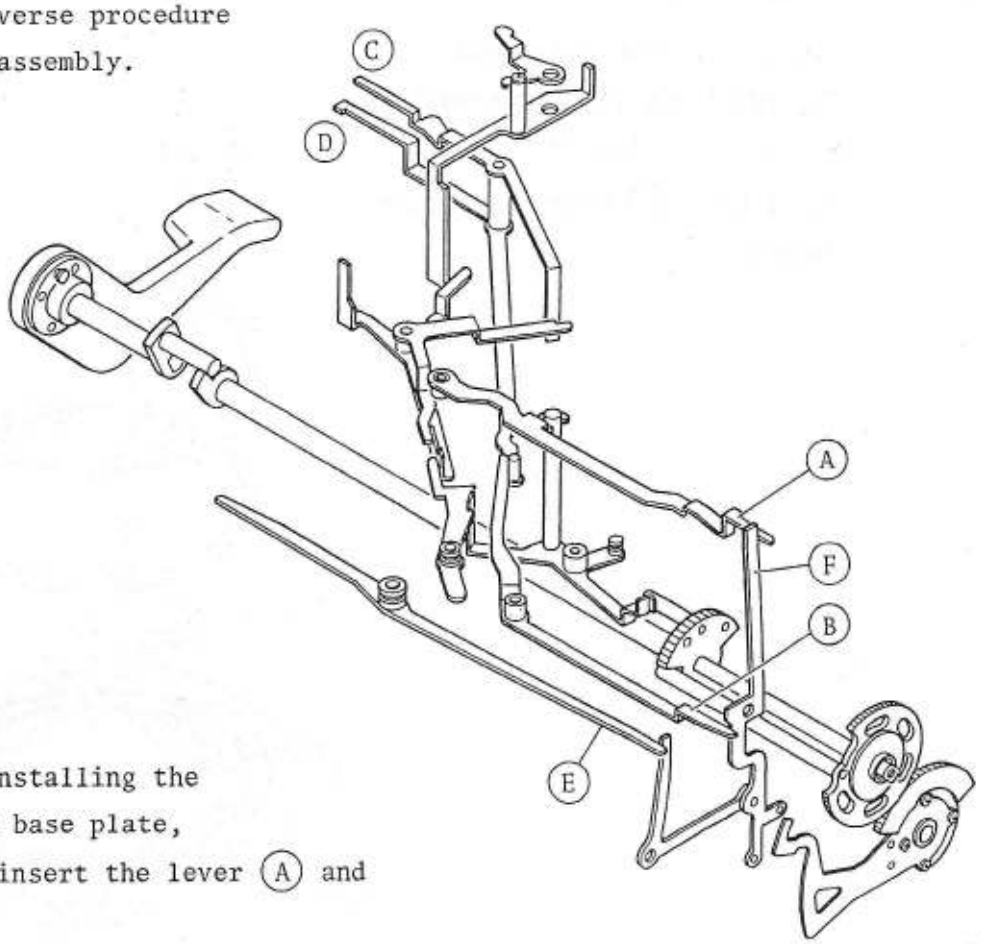


Fig. 47

2. When installing the bottom base plate, first insert the lever (A) and (B) .
3. Next install the (C) and (D) lever.
4. Be careful for position of each lever (A) , (B) and (E) .
5. Apply the screw-lock tight to five screws for the bottom base plate and two screws for the winder linking gear and then tighten them.
6. Confirm the position of each switch contact, S0, S1, S2 and S3.
7. Smooth operation for the release button is required at mechanical release position after reassembling.
8. Check ON-OFF function of the switches by referring to the text "5-3".

2-5 Dis. and reassembly of left side winding base plate

A. Disassembly

1. Remove the back plate and the revolving ring previously as shown in Fig. 48.

   Don't miss (6) parts for click device.

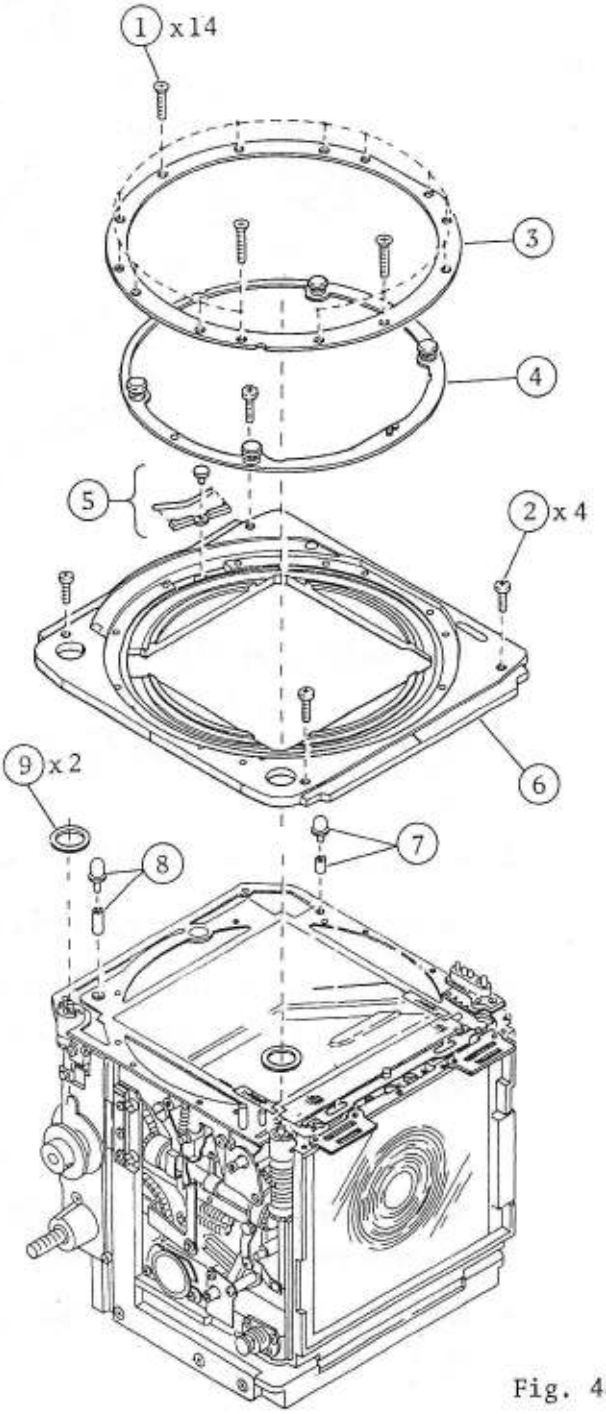


Fig. 48

2. Removal of left side winding base plate.

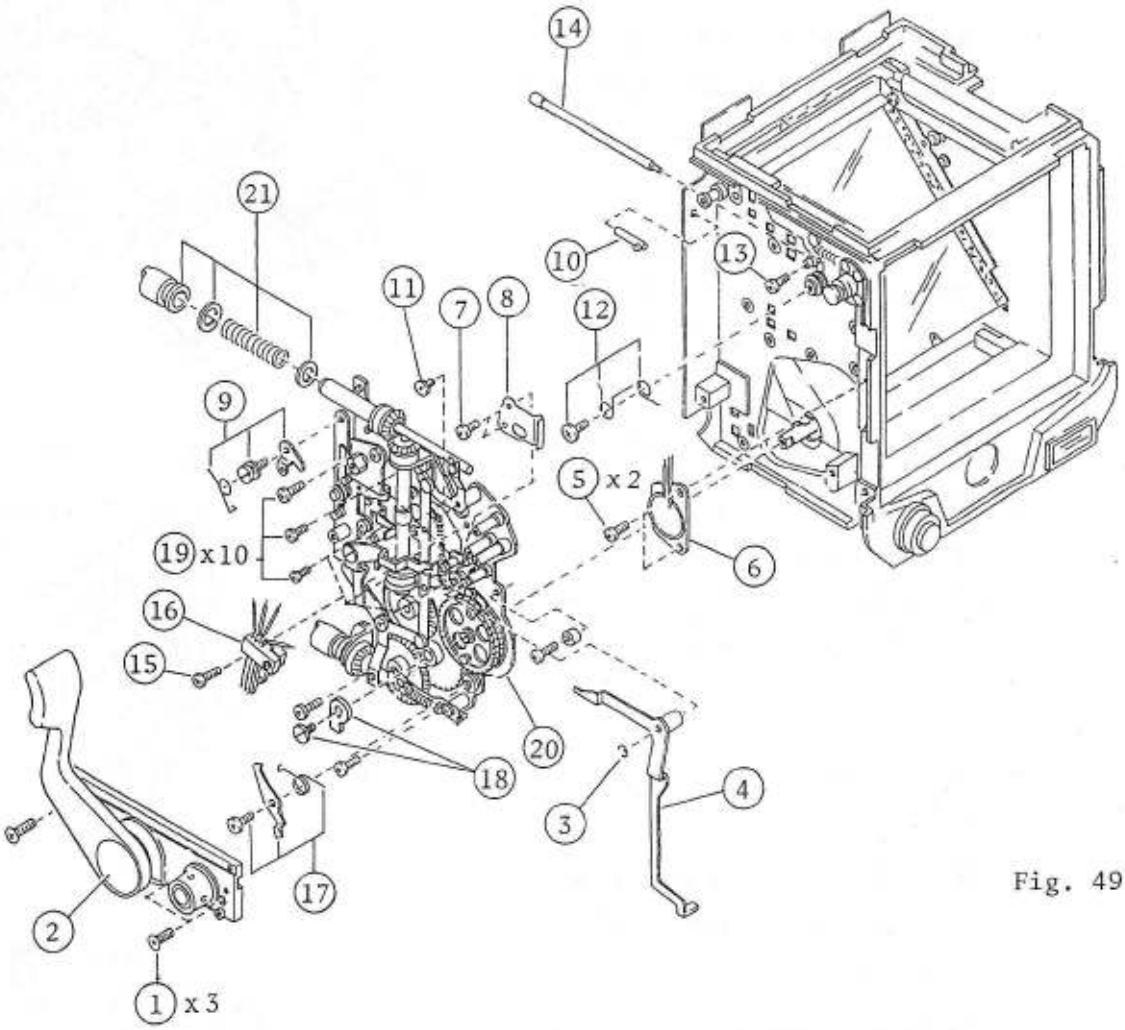


Fig. 49

a. Remove the two stoppers on the both side rack plates and then extend bellows fully by rotating the focusing knob.
b. Shift the R-M lever to M.
c. The arabic numeral in a circle as shown in Fig. 49 indicates procedure of disassembly.

B. Reassembly

Reassembly is generally reverse procedure of the disassembly.

1. When installing the left side winding base plate, check the position of (28) and (29) levers.
2. After installing, try to rotate the (A) bevel gear counter clockwise with your thumb.

   Smooth operation is required.
3. When set the spring for the horizontal screen mask connector, hang (1) first and next (2) as shown in Fig. 51.
4. Check position of (4) lever.
5. Never damage two springs of (B) .
6. Don't forget to hang the spring of (17) winding stop pawl (Fig. 49).
7. Applying screw-lock tight to (18) screw is required before tightening it.
8. After accomplishing, following check and adjustment are required.

a. Body setting angle
   --- Text "3-4".

b. Operation of focusing knob and rack plates
   --- Text "3-3-C".

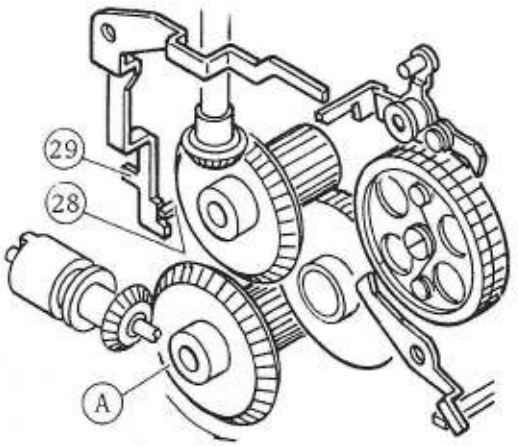


Fig. 50

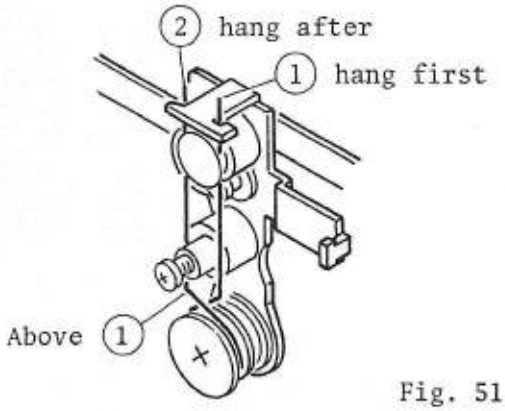


Fig. 51

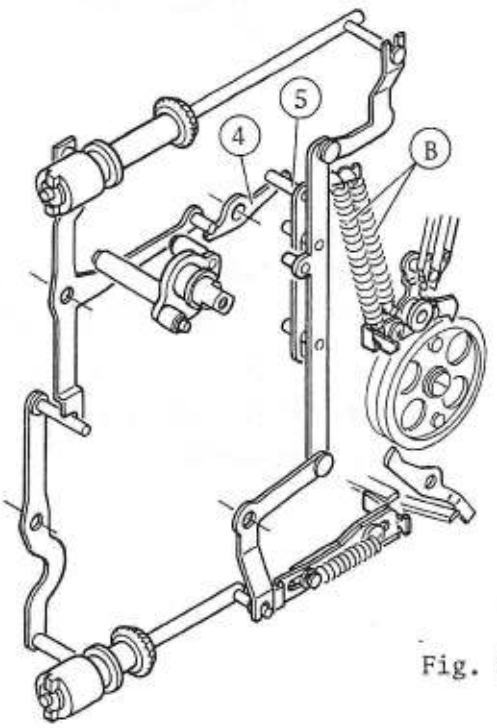


Fig. 52

c. ON-OFF function of S4, S5, S6 and S9 switches.

d. S7 and S8 switches and winding stop lever --- Text "3-5".

e. Operation of horizontal and vertical finder screen masks.

f. Release shutter several times after loading a film.

2-6 Disassembly of top cover for roll film holder

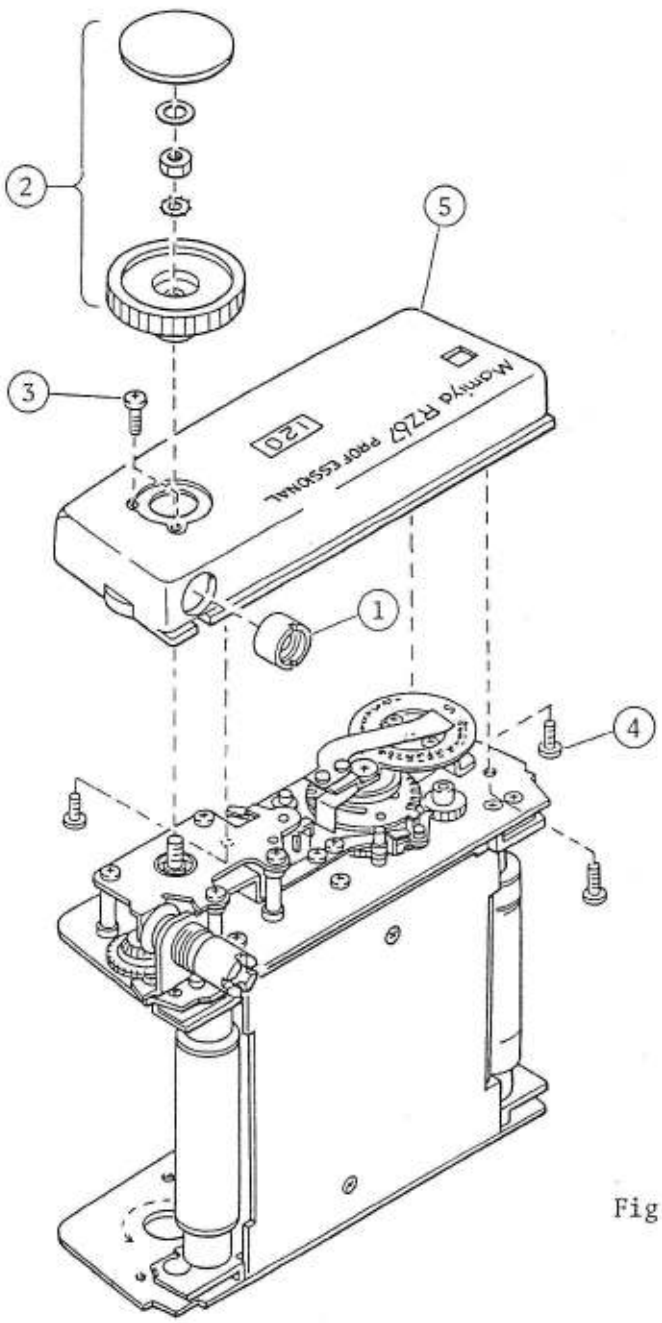


Fig. 53

3

ADJUSTMENT · POSITIONING · REPLACEMENT

3-1 Instollation of mirror-raising gear and idle gear

A. Meshing position of (6) mirror-raising gear

1. When (11) idle gear is in position:

a. Cock the cocking lever fully and return it.

b. Mesh (6) gear with (5) first M gear as the (A) line of the mirror-raising lever makes horizontal.

c. Then tighten (B) screw.

2. In case of without (11) idle gear:

a. Cock the cocking lever fully and return.

b. Rotate (5) first M gear clockwise with your left hand thumb until it stops and hold it.

c. Mesh (5) gear with (6) gear just same as the above step.

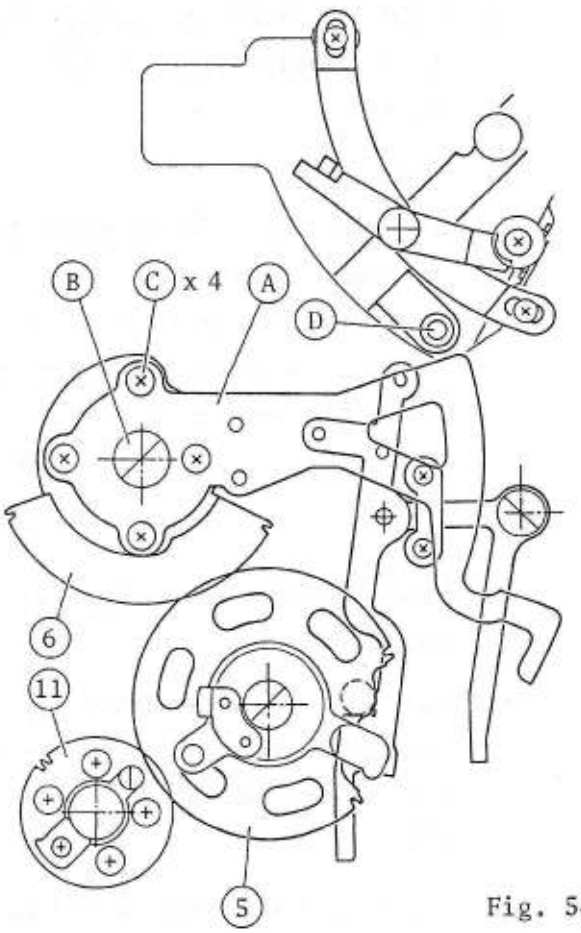


Fig. 54

3. Adjustment of mirror raising lever position

a. When the cocking lever cocked fully, the mirror-raising lever should not touch (C) pole of the mirror holder.

b. With the mirror released, the lever should not push (C) pole.

c. Adjustment

1) Loosen four (C) screws of the mirror-raising lever.
2) Adjust the lever position.
3) Apply some suitable adhesive to the four screws.

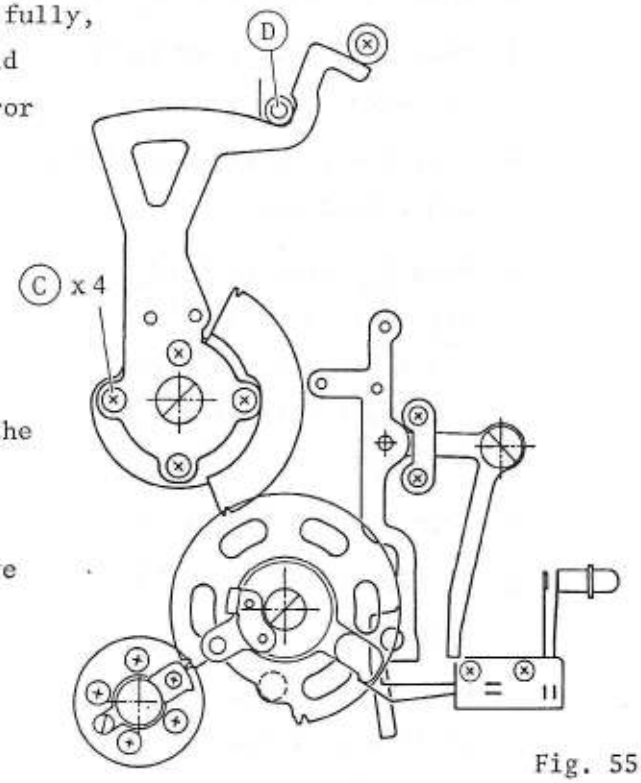


Fig. 55

B. Meshing position of (11) idle gear

1. Release the charge lever in bottom of camera body by pressing the release button. (Fig. 2)

2. Raise up the mirror and light-interception plate fully by turning the mirror raising lever counter clockwise with your finger.

3. Set the R-5 angle gauge onto the bayonet ring and turn its indication arm until it points to 70° degree. Then hold it.

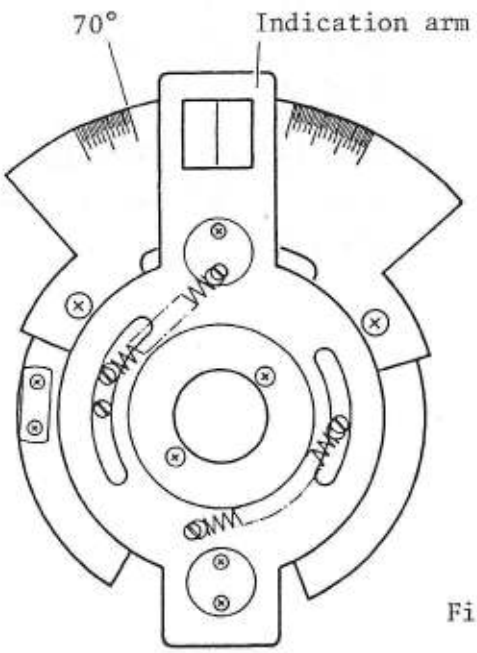


Fig. 56

4. In the above case, mesh (11) idle gear with (5) 1st M-gear as aligning center of the idle gear - protrusion screw (E) with the line (G) .
(Fig. 57)

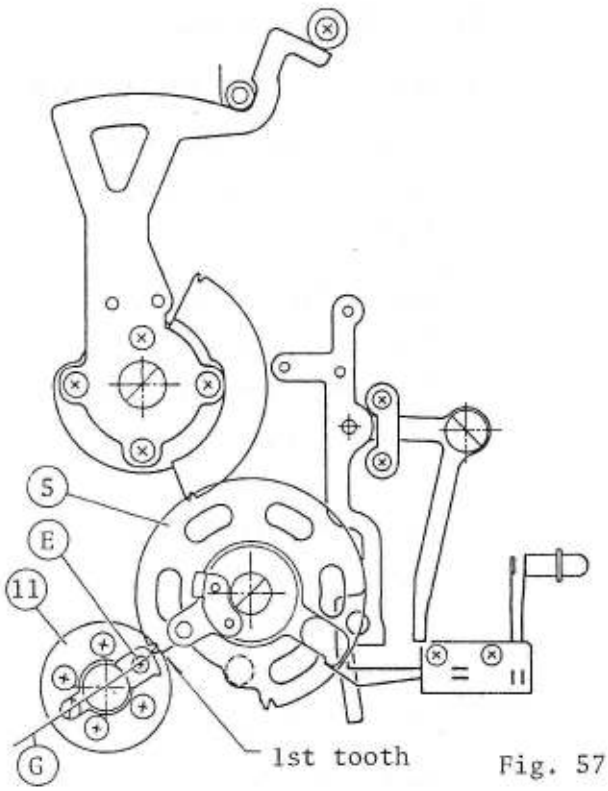


Fig. 57

5. Check
When the cocking lever is depressed to maximum cocking angle, center of (E) screw and the ECC should be aligned on the horizontal line or (E) should be one tooth below of the line.
(Fig. 58)

6. Apply screw-lock tight to the screw and tighten the screw.

7. Install the S9 switch and check its operation ON and OFF .

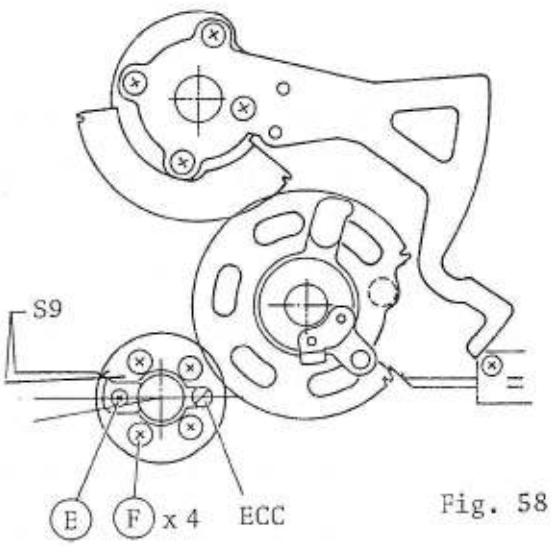


Fig. 58

3-2 Replacement of shutter cocking two bevel gears and set of main-drive spring

A. Removal of two bevel gears

1. Release the mirror by pressing the release button.
2. Remove the S9 switch, the idle gear and the two rack plate stoppers on the each rack plate.

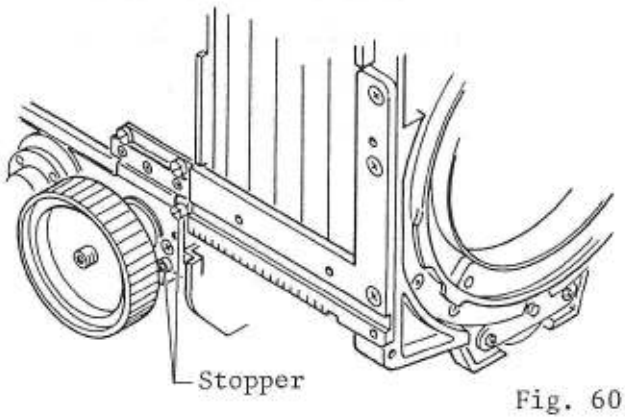


Fig. 60

3. Extend the bellows by turning the focusing knob until the cocking shaft comes out of the bevel gear (A) .
4. Remove the two bevel gears After unscrewing their fixing screws.

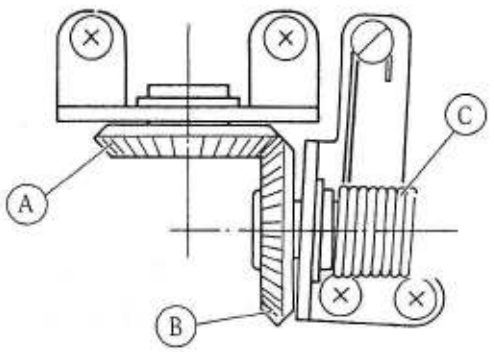


Fig. 60

B. Installing two bevel gears

1. First install the (A) bevel gear and tighten two screws. (Screw lock-tight)
2. Install the other bevel gear (B) with the main drive spring and mesh it with the (A) bevel gear as shown in the Fig. 59, 60.
3. Tighten its two screws and one shoulder screw. (Screw lock-tight)

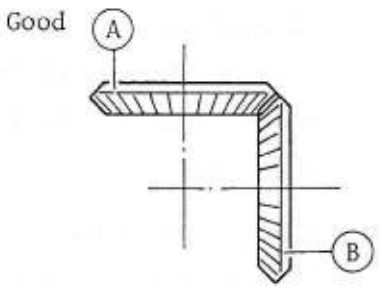


Fig. 61

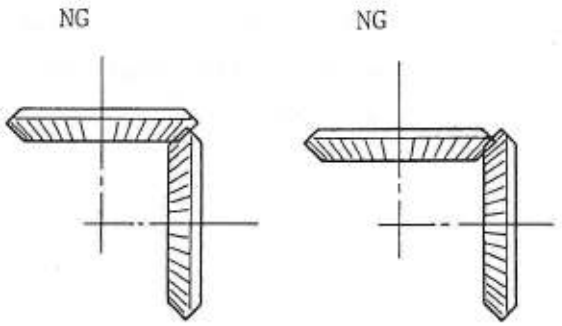


Fig. 62

C. Wind of main drive spring

1. Check that the mirror is raised up.

2. Insert tip of a radio-repair minus screw-driver into the hole of the bevel gear.

Note: The screwdriver which has its bit length over 75mm and tip width 4mm - 5mm is useful.

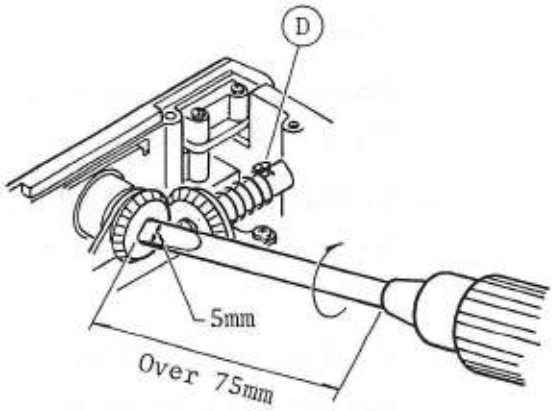


Fig. 63

3. Rotate the screwdriver clockwise until the hook of the spring hangs on the (D) anchor and rotate it one full turn more.
Then hold the screwdriver.

4. Mesh the idle gear with first M gear by referring to the text "3-1- B ".
Also insert the cocking shaft into the hole of the bevel gear by referring to the text "3-3- B ".

5. Screw in the each rack plate stopper on the each float.

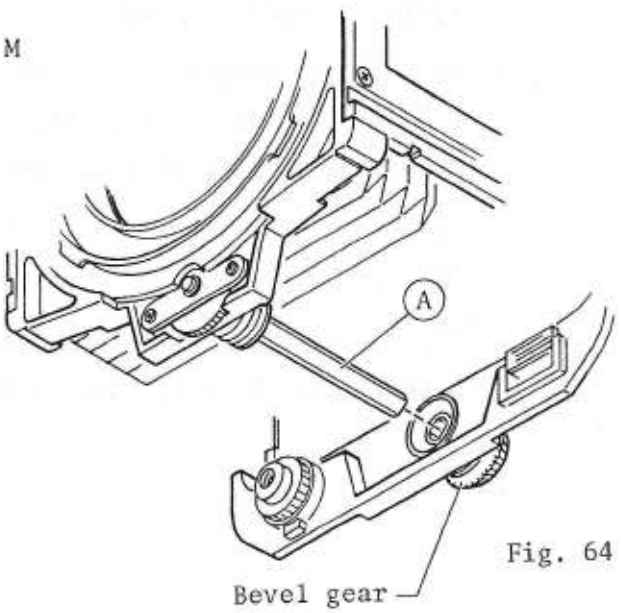


Fig. 64

6. Meshing the cocking gear with the shutter cocking ring:

a. Remove the two screws of the cocking gear plate.

b. Extend the bellows fully by turning the focusing knob.

c. Disengage the cocking gear from the shutter cocking ring by pulling the tip of cocking shaft.

d. Insert a pair of tweezers into the hole of the shutter cocking ring and then turn it counter clockwise until it stops.

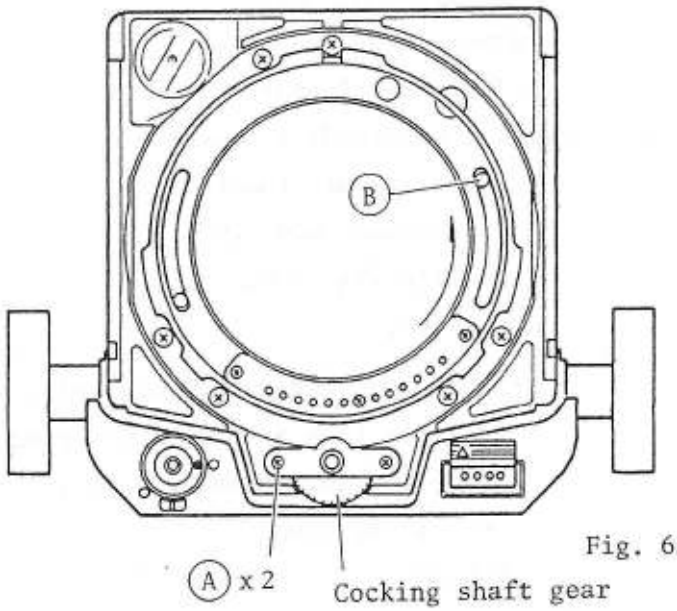


Fig. 65

e. Mesh the cocking gear with the cocking ring and tighten the two screws of the cocking gear plate.

f. Check and adjust the body cocking angle by referring to the text "3 - 4".

g. Tighten the idle gear screw in applying a screw lock-tight. Install the S9 switch and check the operation ON - OFF .

3-3 Installation and adjustment of rack plates

A. Flatness adjustment of rack plates

1. Install the rack plates to front board.

Note: 1) Before installing them, put the film washer both sides of the board.

2) Apply screw-lock-tight on the six PD2.6 x 5 screws and then tighten them firmly.

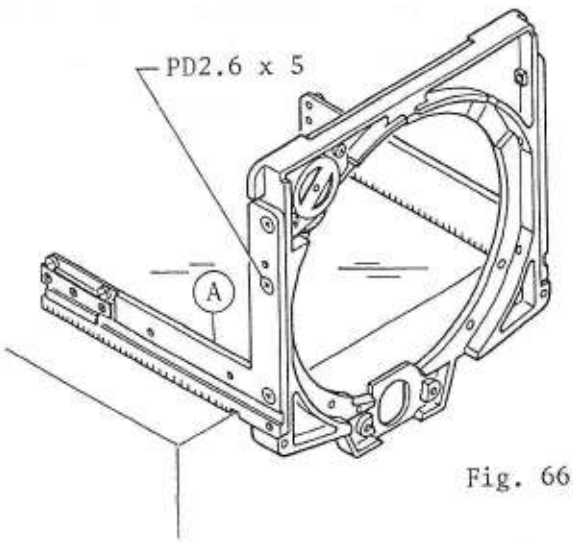


Fig. 66

2. Put the rack plate with the front board on a surface plate.
   Check the flatness of them.

3. If there is any wabble, hit the marked point (A) of the either rack plate with a plastic hammer lightly to eliminate it.

B. Installing rack plates with front board

1. Install the left and right floats and the rack-pinion shaft in the camera body. (Helico-lube)

2. Insert the both ends of rack plates into the floats.

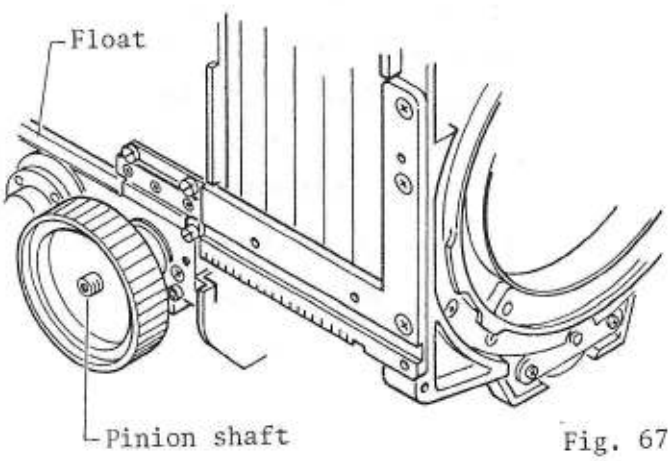


Fig. 67

3. Correspond the shaft (A) by rotating its gear with rectangular hole of the bevel gear.
Then mesh the rack plates with the rack pinion by pushing the front board.

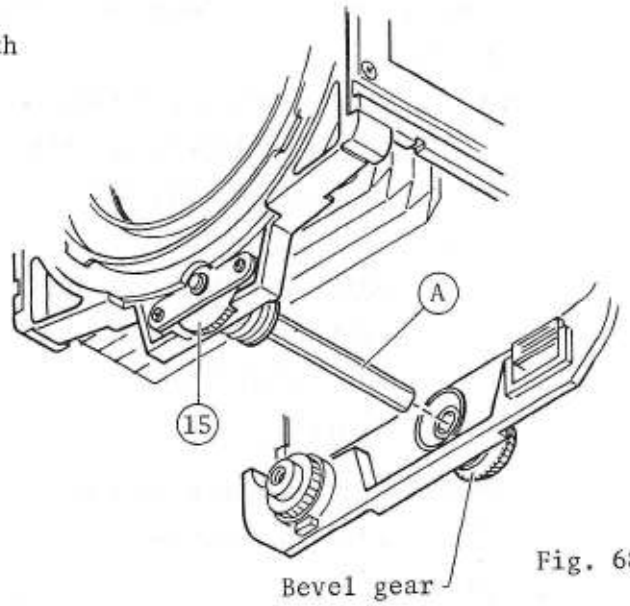


Fig. 68

4. After meshing check the tooth level of the both rack plates as follows:

a. Align the first tooth of either rack plate with the protrusion (B) of die-casting by rotating the focusing knob. (Fig. 69)
The other side rack plate must be in the same level.

b. If the each tooth level is not the same, change the mesh with the rack pinion.

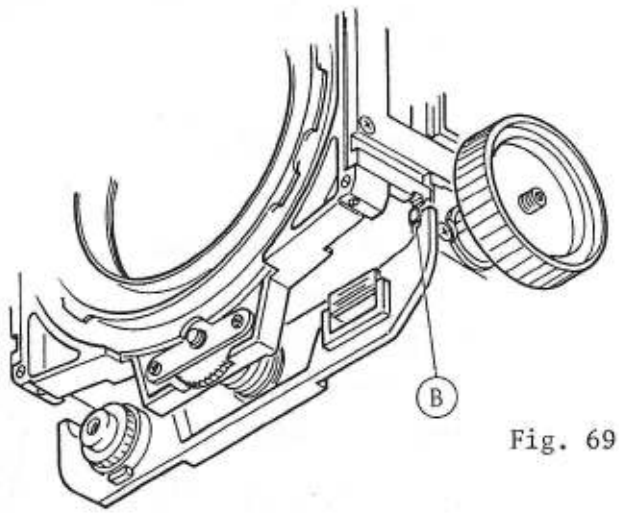


Fig. 69

C. Adjustment of rack plate operation.

Install the rack-adjusting plates and screw in the stoppers.

C-1. Play of rack plate and float

1. Check

Fully extend the bellows by rotating the focusing knob. Then check the play by twisting the front board up and down.

Note: A little play will be allowable.

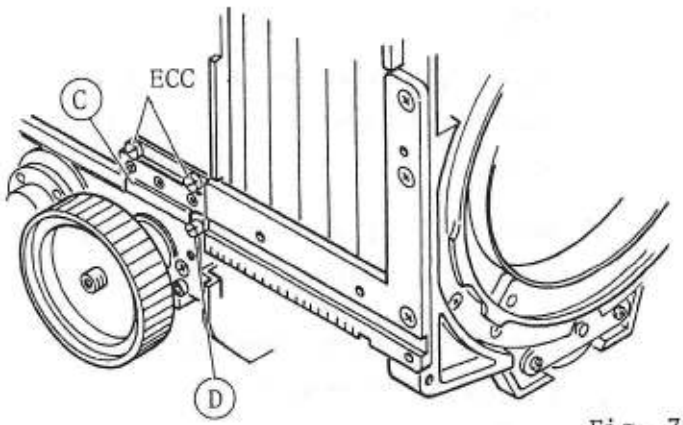


Fig. 70

2. Adjustment

Reduce the play by turning the two eccentric dowel in the rack-adjusting plate of each side.

Note: But smooth operation of the focusing knob is always required.

C-2. Play of rack and pinion

1. Check

Rotate the focusing knob back and forth quickly.

Only a little play will be not critical.

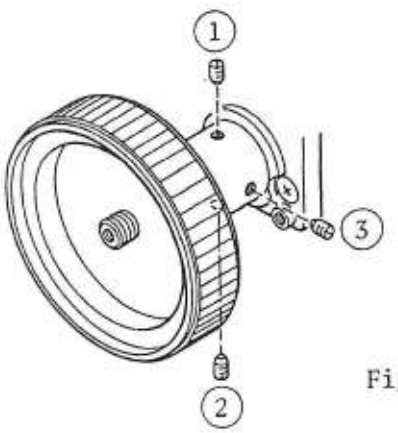


Fig. 71

2. Adjustment

Adjustment is made by ① , ② and ③ screws as shown in Fig. 72.

a. When tightening the screw ① , mesh of the gear teeth will be shallow.

b. When tightening the screw ② , mesh will be deep.

c. When tightening screw ③ , play will be reduced.

Note: Rotation of the knob should be smooth without a trace of harshness or grinding.

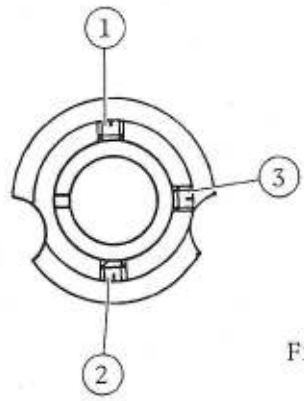


Fig. 72

3-4 Check and adjustment of body cocking angles

1) Start position of shutter cocking ring:

$68° + 0°30'$
$- 1°0'$

2) Locking angle of latch:

$109°30' \pm 0°20'$

3) Maximum cocking angle:

$110°30' \pm 0°30'$

4) Lock-finish position:

$104°30' \pm 0°20'$

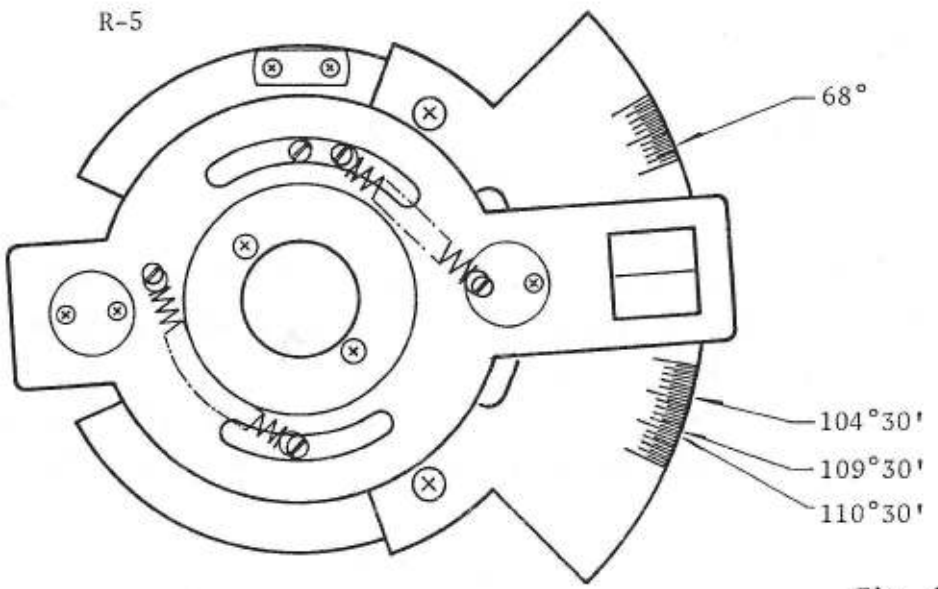


Fig. 73

A. Check

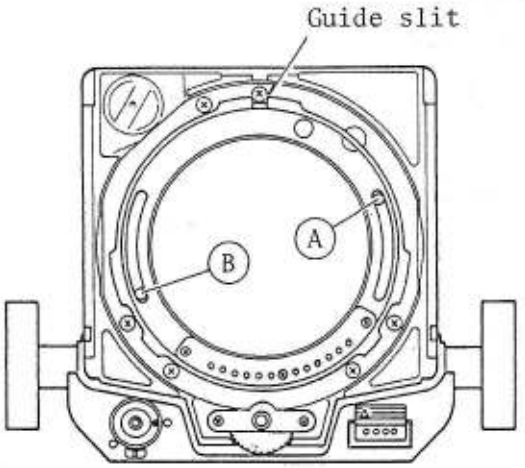


Fig. 74

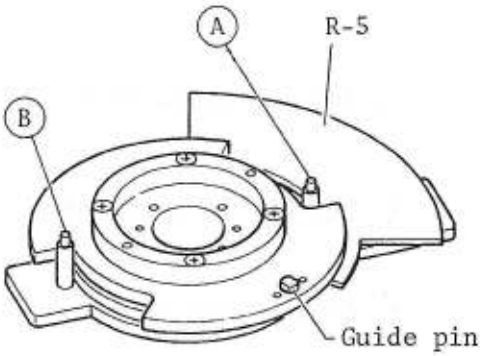


Fig. 75

1. Start position of shutter cocking ring:

$$68° \begin{smallmatrix} + 0°30' \\ - 1°0 \end{smallmatrix}$$

a. Release the mirror by depressing the shutter release button.
b. Install the R-5 cocking angle gauge by inserting its guide pin into the guide slit on the bayonet ring.
c. With the pin (A) and (B) of the gauge joined with two holes of the shutter cocking ring, the indicator of the gauge should point

$$68° \begin{smallmatrix} + 0°30' \\ - 1°0 \end{smallmatrix} .$$

2. Locking angle of latch

$$109°30' \pm 0°20'$$

a. Wind the cocking lever of the body slowly in pressing the indicator arm counter clockwise with your finger lightly.
b. When the click sounds, the indicator should point

$$109°30' \pm 0°20' .$$

3. Maximum cocking angle

$110°30' \pm 0°30'$

When the cocking lever is depressed down until it stops, the indicator should point $110°30' \pm 0°30'$.

4. Lock-finish position

$104°30' \pm 0°20'$

When the cocking lever is returned from the maximum cocked position slowly, the indicator should point $104°30' \pm 0°20'$.

B. Adjustment

1. If lock-finish position is different more than one degree:

a. Extend the bellows fully by rotating the focusing knob.

b. Remove two screws (A) of cocking shaft gear plate (Fig. 76)

c. Change the mesh of the cocking shaft gear with the cocking ring upon pulling the cocking gear.

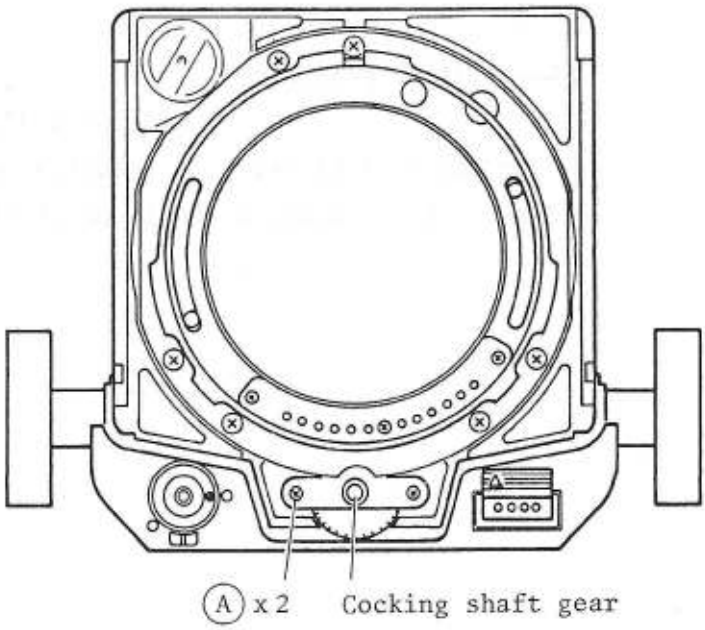


Fig. 76

2. Fine adjustment

a. Loosen the four (B) screws of the idle gear.

b. Adjustment is made by turning the eccentric dowel.

c. After adjusting, apply DB-bond or some proper adhesive to screws.

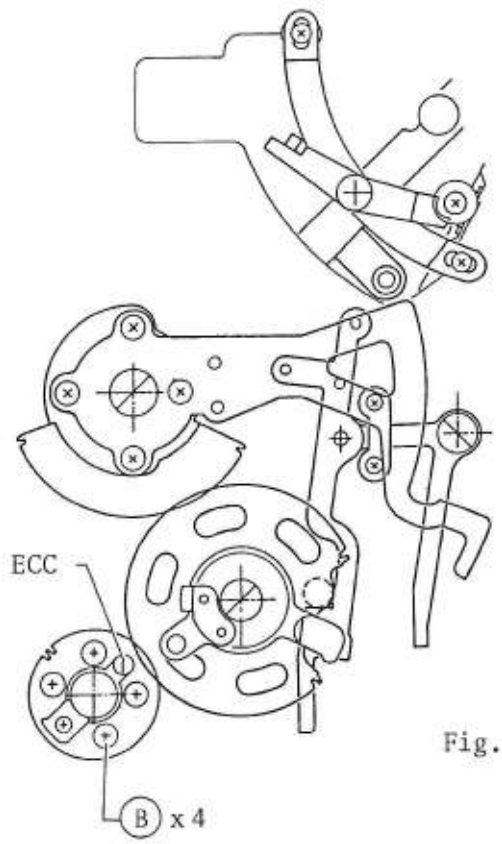


Fig. 77

3-5 Adjustment of wind stop lever and S7-S8 switches

A. Adjustment of the wind stop lever position

1. Check it with RZ-5 gauge, 1.9 side.

a. Shift the R-M lever to normal position and cock the cock lever.

b. Make the protrusion of the signal bar 1.9mm by applying the RZ-5 gauge 1.9 side. (Fig. 78)

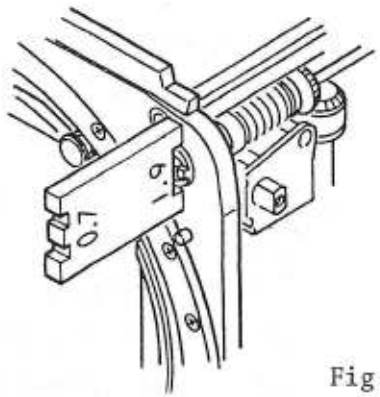


Fig. 78

c. At this time, clearance between the (30) wind stop lever and (A) stopper should be approximately 0.05mm. (Fig. 79)

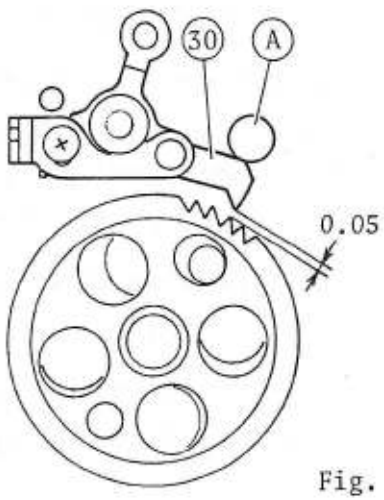


Fig. 79

2. Check it with RZ-5 gauge 0.7 side.

a. The RZ-5 gauge 0.7 side makes the protrusion of the signal bar 0.7mm.

b. At this time, (30) wind stop lever pawl should mesh at least 2/3 deep with the ratchet. (Fig. 80)

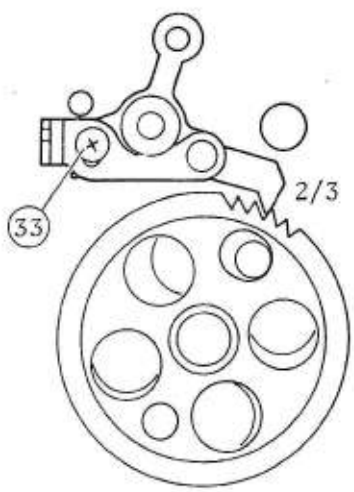


Fig. 80

3. Adjustment
Adjustment is made by changing the angle of the lever in loosening (33) screw.
After adjusting, apply DB-bond or some proper adhesive to (33) screw.

B. Eliminate play of (29) 2nd release lever

1. Shift the R-M lever to normal position.

2. Make the protrusion of the signal bar 0.7mm by applying RZ-5 gauge 0.7 side.

3. In this case, try to lift up (29) 2nd release lever with tweezers lightly.
   Any clearance between (30) and (31) should not be allowable.

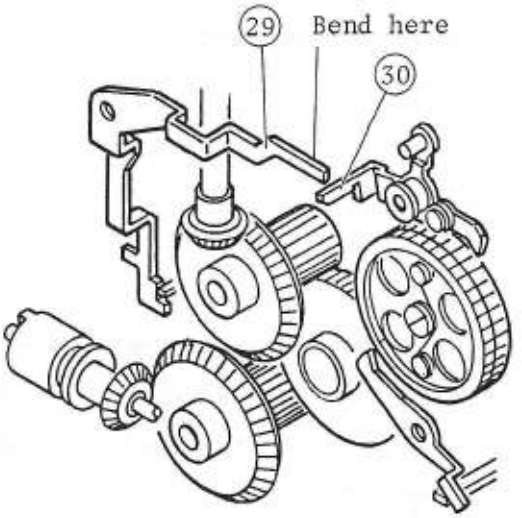


Fig. 81

4. Elimination of play:

a. Deliberately bend end of (29) lever with pincers.

Note: When bending it, don't get out of the shape.

b. Recheck the play with the RZ-5 gauge 0.7 side.

c. Be careful not to bend immoderately.
   Meshing depth of (30) lever pawl with ratchet should be more than 2/3.

C. Adjustment of S7 and S8 switches

1. Shift the R-M lever to normal position and cock the cocking lever.

2. When shifting the R-M lever to M, align the tip of (30) pawl with the tip of (31) ratchet tooth by rotating the bevel gear with your thumb.

3. When the R-M lever is shifted from normal position to M, when the both tips are aligned, the S7 switch should be exactly changed from ON to OFF.

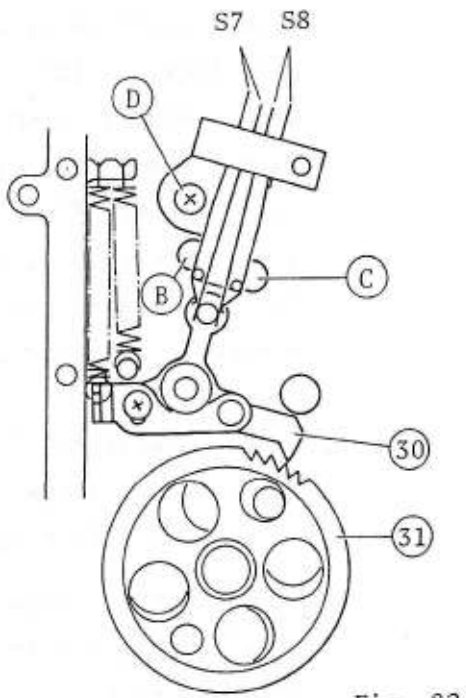


Fig. 82

4. Adjustment

a. Push (B) or (C) point of the switch base in direction of whichever you desire with a screw driver.

b. Tighten the fixing screw of the base firmly after adjusting.

5. Check

a. Cock the cocking lever and shift the R-M lever to R .

b. Depress the shutter release button upon holding the R-M lever with your left hand thumb.
Then return the R-M lever to normal position slowly.

c. While the R-M lever is shifted to normal position, the S8 switch should not be turned on.

d. If the S8 switch is turned on, adjust it again.

6. Check of (E) R-Lever operation.

a. Depress the shutter release button upon pushing the signal bar and the film advance coupler with your left hand thumb, holding the R-M lever with your left hand index finger. In the above case, try to shift the R-M lever from R to normal position slowly. The (E) R-lever collar should return to its original position completely.

Note: Be careful the R-lever collar sometimes stops in halfway without returning completely.

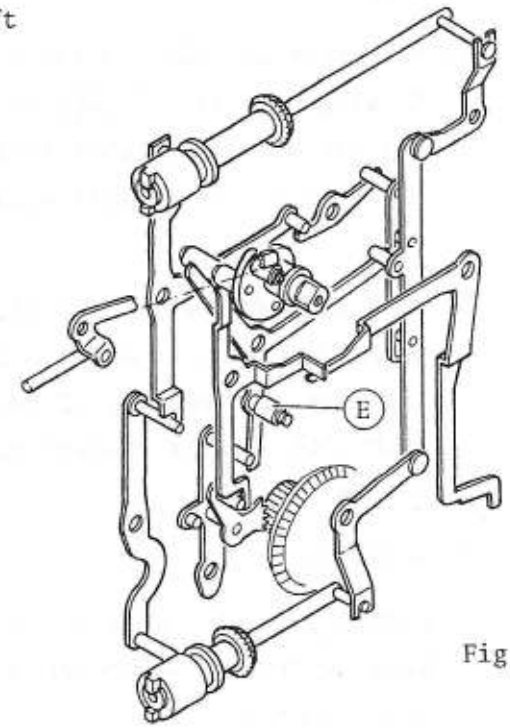


Fig. 83

b. If not return, adjust it by straigtening middle of (29) 2nd release lever.

c. Trouble shooting
If the R-lever collar does not return completely, it can not be possible to release the shutter because the S7 switch is not turned off.

3-6 Operation of charge lever and 2nd push plate tension

A. Operation of charge lever

1. Charge the mirror by cocking the cocking lever.
2. Press the shutter release button in stopping (9) charge lever with a screwdriver or tweezers.
3. When the screwdriver or tweezers is detached from the charge lever, the charge lever should operate by its spring.
4. If not begin to operate,

a. Apply Helicolube to (10) latch.
b. Replace the spring of charge lever.
c. Check the spring tension of the 2nd push plate as following step "B".

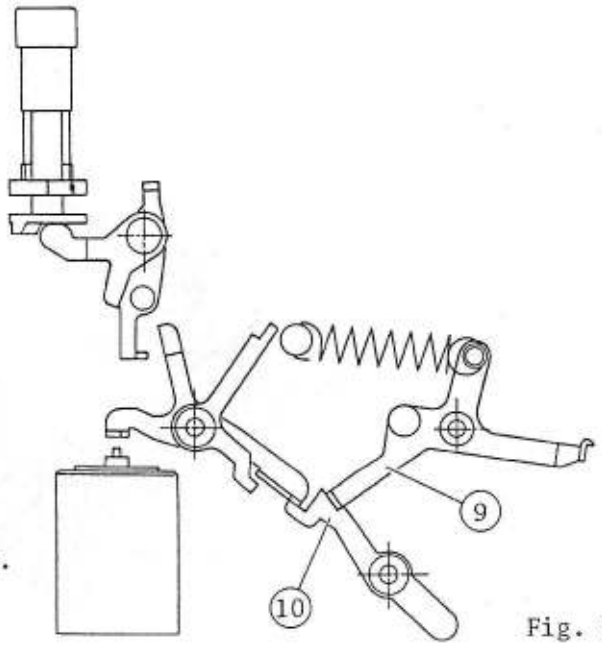


Fig. 84

B. Spring tension of 2nd push plate

1. Push the signal bar in direction of the arrow until it stops.
2. When the (A) part of the 2nd push plate is pushed in direction of the arrow by using a tension gauge, the gauge should indicate 270gr to 300 gr.
3. If the spring tension is out of the above limit:

a. Replace the (B) spring with the newone.
b. Check and adjust operation of the 2nd push plate.

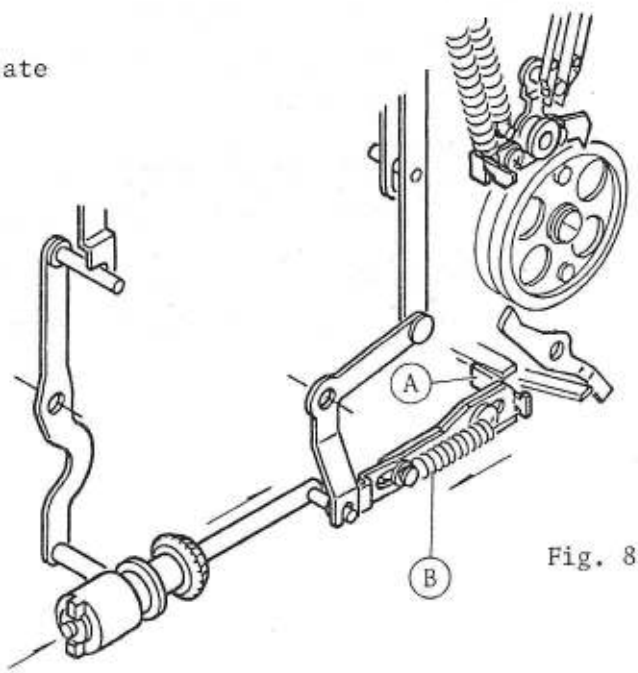


Fig. 85

3-7 Finder screen mask

A. Horizontal mask

A-1. Operation

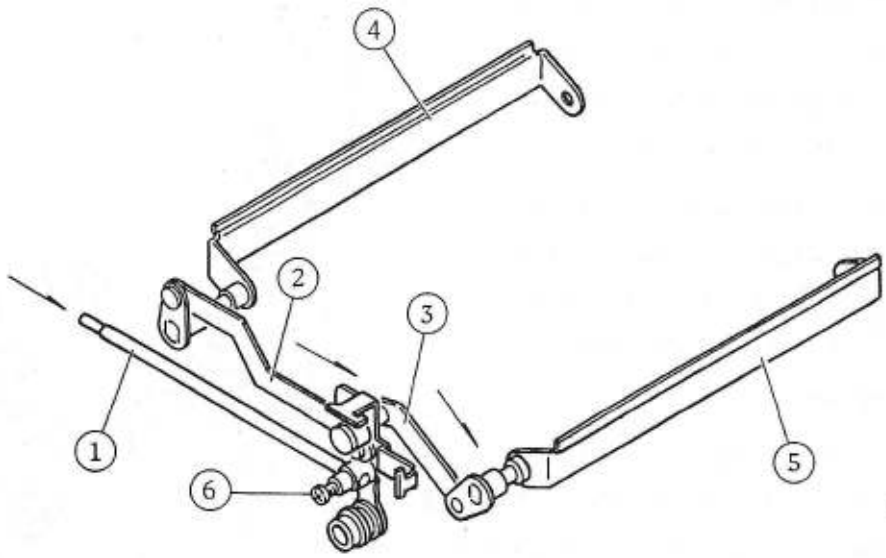


Fig. 86

1. When the roll film holder is attached to the body at horizontal, (2) and (3) move in direction of the arrow by (1) change-over bar is depressed.
2. (4) back and (5) front masks appear and cover front and back parts of finder screen, so that a horizontal screen format will result.
3. When the roll-film holder is turned clockwise to vertical until it stops, the front and back mask should vanish.

A-2. Check point

1. Protrusion length of (1) change-over bar should be 2.3mm from the back plate face.
2. It can be possible to measure it with the RZ-6 gauge. (Fig. 87)

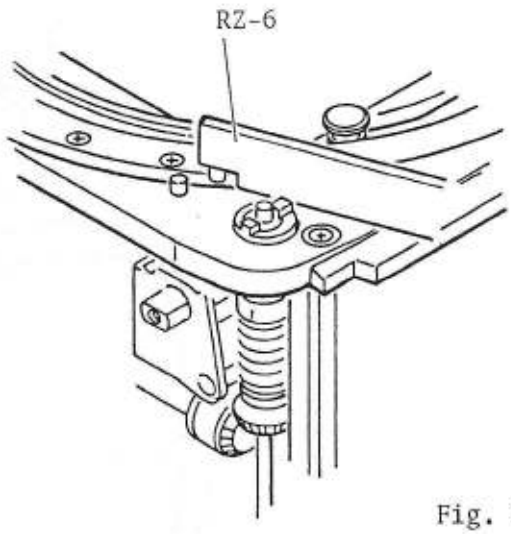


Fig. 87

3. Adjustment

a. Loosen the (6) screw. (Fig. 88)
b. Pull or push (1) change-over bar.
c. After adjusting, tighten the screw gently.

4. Be careful position of (7) spring.

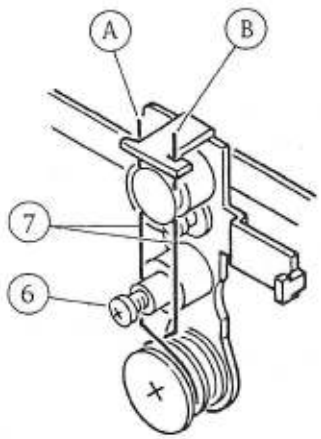


Fig. 88

B. Vertical mask

B-1. Operation

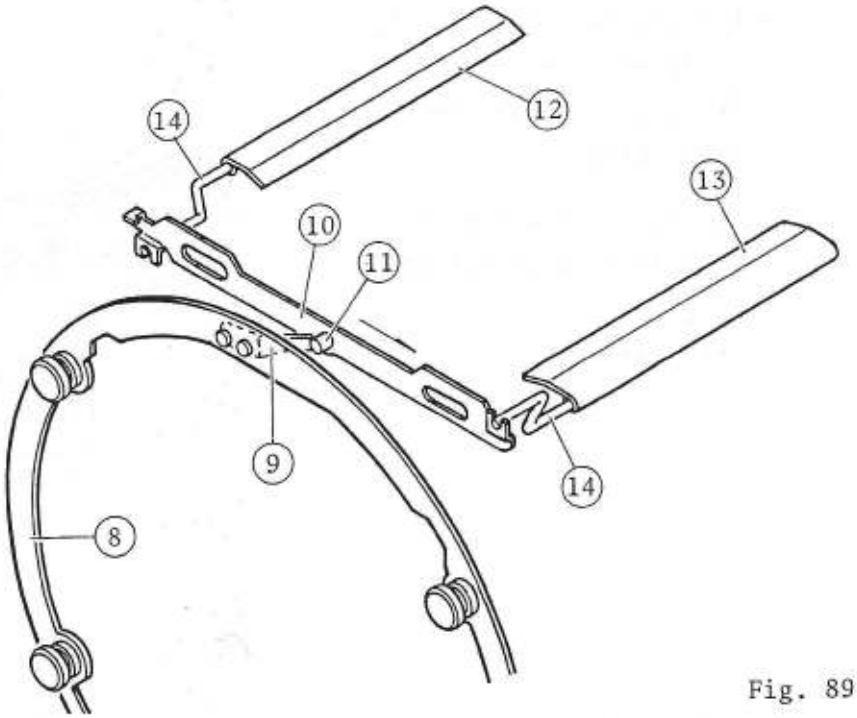


Fig. 89

1. Shift the R-M lever to R and turn the holder clockwise to vertical format until it stops.
2. (11) slide plate pin is pushed in direction of the arrow by means of (9) contact.
3. (12) and (13) vertical mask appear, so that the vertical screen format will result.
4. When the holder is turned counter clockwise until it stops, the masks should vanish.

B-2. Check point

1. Once crush down the two vertical masks with your finger.
2. When the holder is turned from horizontal to vertical, the vertical masks should appear again.
3. Adjustment

a. Pull out the shaft of the mask.

b. Proper operation of the mask will depend on how bend or how deform the shaft.

Note: But try to bend it only a little.

3-8 Replacement of mirror holder unit and light interception plate

A. Removal of mirror holder unit

1. The arabic numeral in a circle indicates procedure of disassembly.
2. Carefully bend (5) inner frame downward.

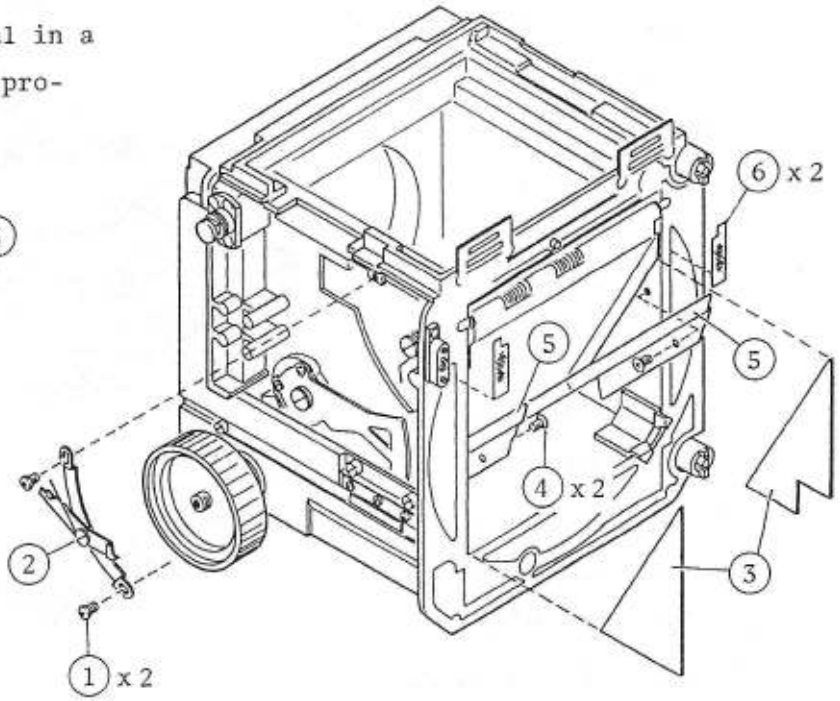


Fig. 90

3. Release the mirror holder spring in right side.
4. Pull out the mirror holder unit slantwise. (Fig. 91)
5. Do not miss two bearing pipes on the both ends of the holder shaft.

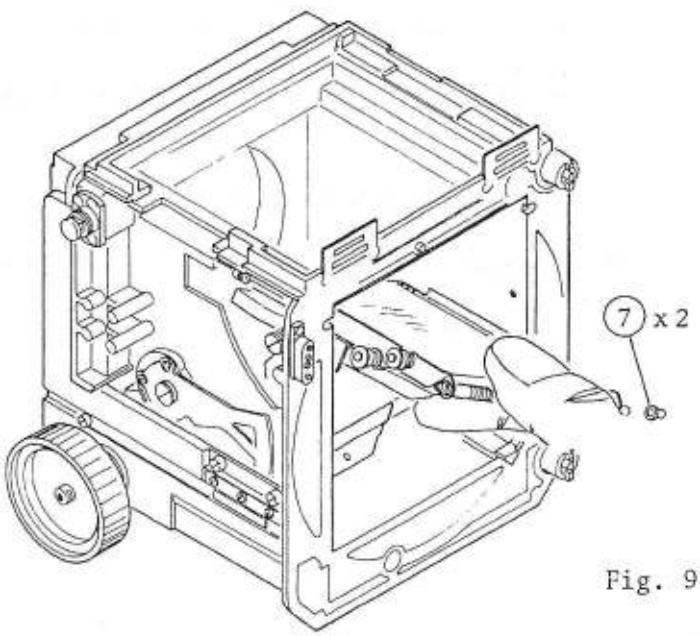


Fig. 91

B. Replacement of new mirror holder unit

1. Put the following five parts on the mirror holder and the light interception plate previously.

   (A) Curtain
   (B) Cushion
   (C) Black suede-like material
   (D) Two light baffles
   (E) Mirror back paper

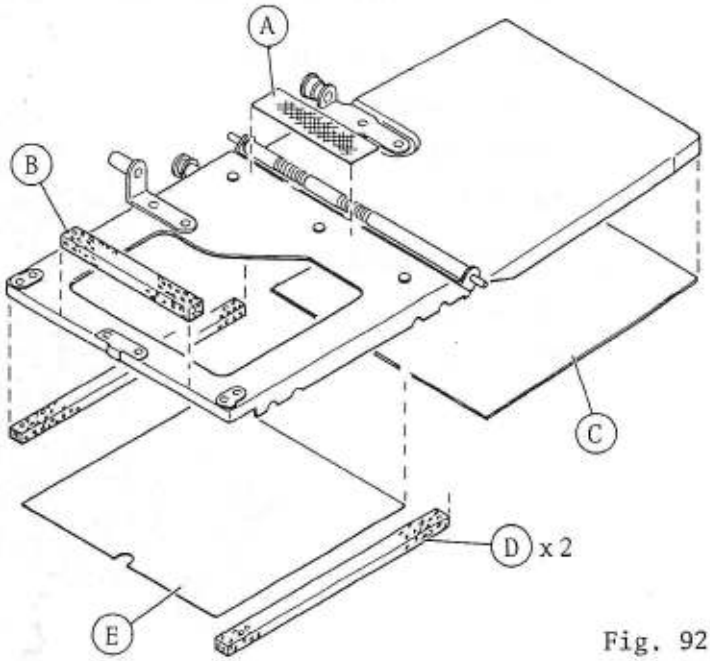


Fig. 92

2. Then reassemble it in reverse procedure of disassembly.

3. Never forget to put the two (6) curtains.

4. Replace the both (3) black suede-like materials to new ones.

5. After completing the reassembly, following check and adjustment are required.

a. Operation finder screen masks

b. Operation of lock lever for light interception plate

c. View finder focus

3-9 Adjustment of lock lever for light-interception plate

1. When the mirror is charged, the (A) pole of the light interception plate should be locked with the (B) lock lever.
2. Adjustment is made by changing the position of the lock lever.

Note: The lock lever spring will be stronger by turning the (C) screw counter clockwise.

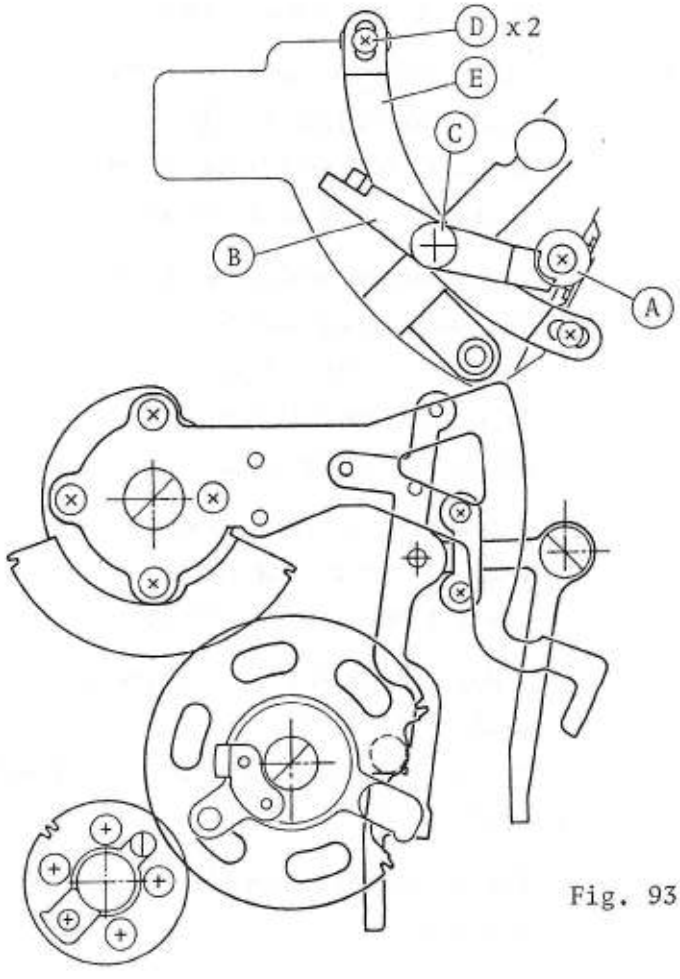


Fig. 93

3-10 Position of focusing knob lock lever and adjustment

A. Position of lock lever

1. Screw in the focusing knob lock lever to the pinion shaft.
2. Align the (A) surface of the lock lever with the (B) shoulder of the pinion shaft by turning the lock lever.
3. In the above case, the top of the lock lever should point nearly to right above. If not, remove the two (C) screws and adjust it.
4. Put a 11W6 x 0.05 washer on the lock lever and then install the focusing knob.

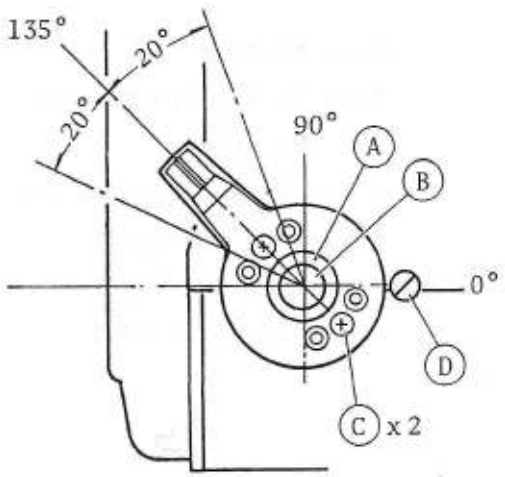


Fig. 94

5. Simply raise the lock lever and push it forward.
   The focusing knob should be clamped when the lock lever is pushed to 135° ± 20°.
6. The lock lever should stop on the (D) pole with click when it is returned.

B. Adjustment

1. Clamping angle:
   If the clamping angle is out of the limit, change the lock lever fixing position upon removing the two screws.
2. If returning the lock lever is too heavy, remove the 11W6 x 0.05 washer.

3-11 Replacement of LED prism

A. Removal

1. Remove the (B) rear horizontal mask by unscrewing two (A) screws for the mask.
2. Remove the prism cover and the prism by unscrewing its three screws (C) .

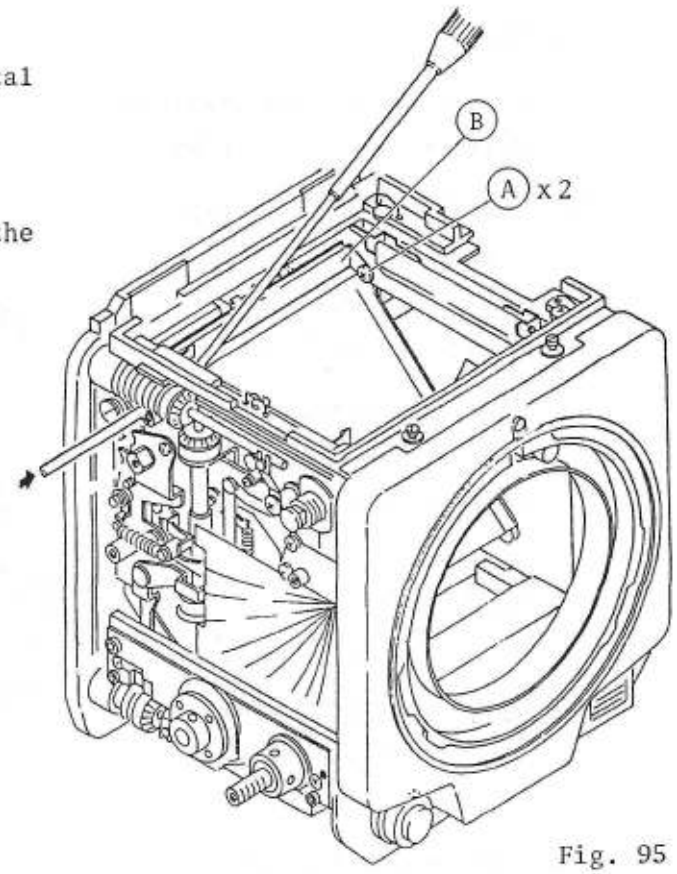


Fig. 95

B. Installation

1. Install it in facing the prism upward. (Fig. 96)
2. When installing the rear horizontal mask, first tighten the right side screw and then insert the left side shaft into the hole of the mask.

Note: When insert the shaft into the hole, push the shaft from the outside.

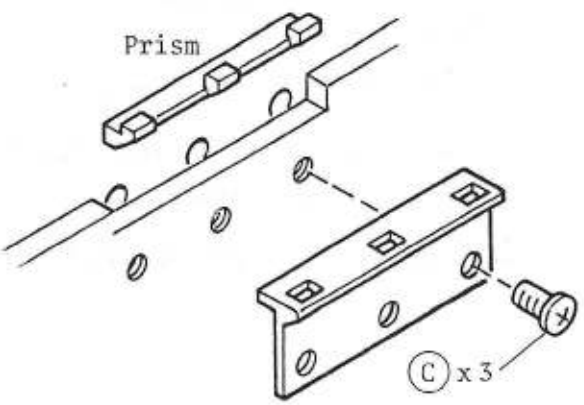


Fig. 96

3-12 Replacement of bellows

A. Removal

1. Extend the bellows fully by turning the focusing knob.
2. Remove the nine screws fixing the bellows to the front board from inside of the bellows.
3. Also remove the four screws on outside four corners of the bellows.

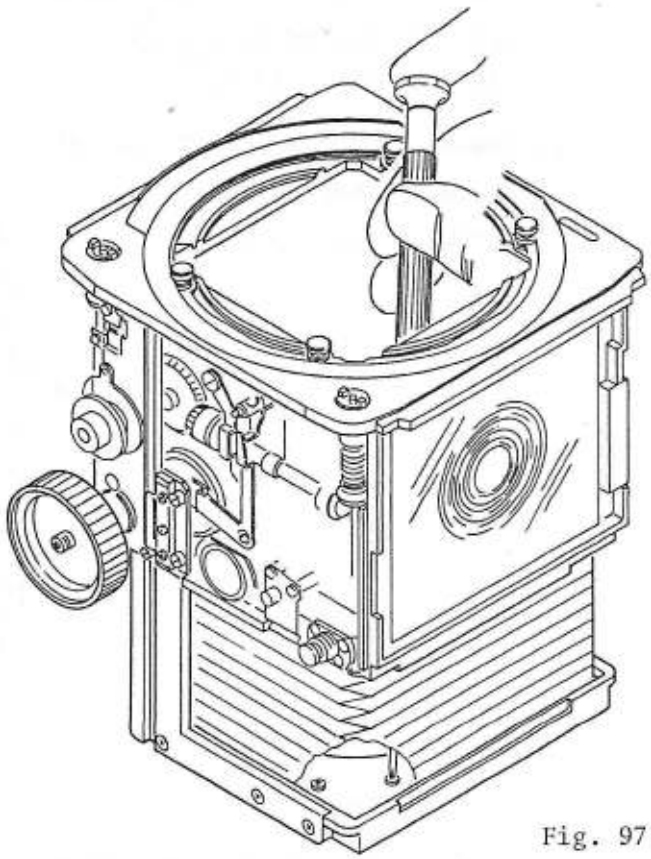


Fig. 97

B. Installation

1. Check the light baffle material on the body. If necessary, change it to new one.
2. Put the cushion material into the front frame of the bellows.
3. First tighten the outside four corners to the body with the four screws.
4. Extend the bellows fully and then tighten the nine screws from the inside of the bellows.

Note: Never drive the screws slant-wise.

3-13 Operation of signal lever and winding stop pawl (RZH)

A. Operation of signal lever (36)

1. When the signal lever is interlocked with the dividing device, try to push end of the signal bar into the film advance coupler with a tension gauge.

a. Initial movement should made at over 90gr.

b. Further depresseing, (36) signal lever should be disengaged out of the slot of the (37) by pressure less than 140gr.

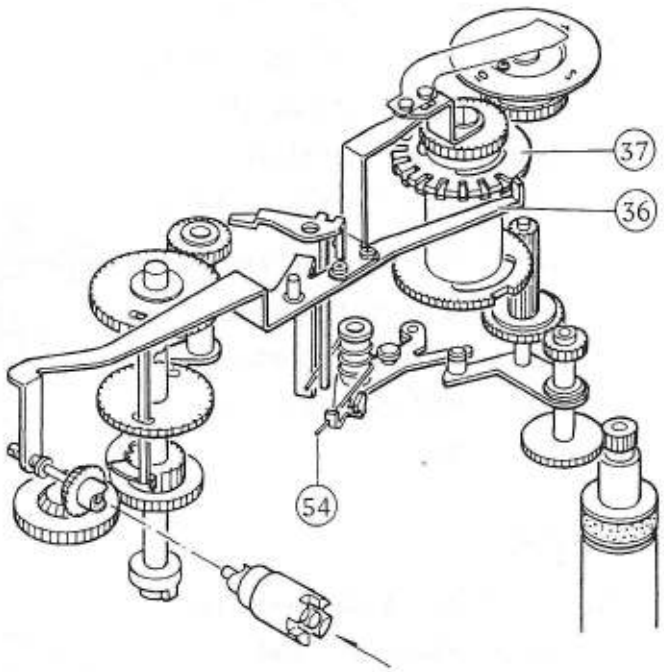


Fig. 98

2. Adjustment

Adjustment is made by changing (54) spring to new one or making it a little stronger upon bending.

B. Adjustment of stroke of signal bar

1. When the signal lever is disengaged out of the slot, push the signal bar with the RZ-6 gauge (3.9). (Fig. 99)
2. Screw in the (55) adjusting screw on the end of the signal lever until it touches to the signal bar.
3. Set a snap ring to the (A) part and turn the screw counter clockwise and then apply some adhesive to the screw.

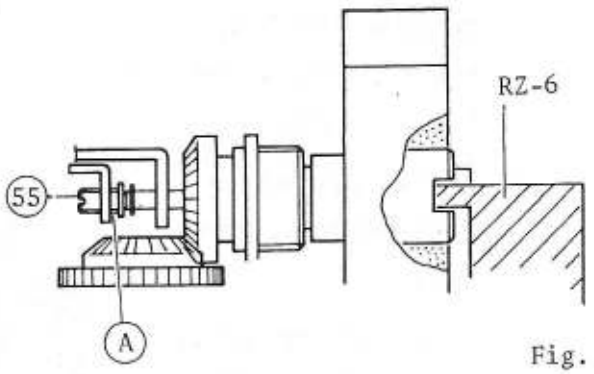


Fig. 99

4. Check

a. When the signal lever is interlocked with the slot, push the signal bar by using the RZ-6 gauge (4.3) deliberately.

b. If not, readjust it by repeating the above step 1, 2 and 3.

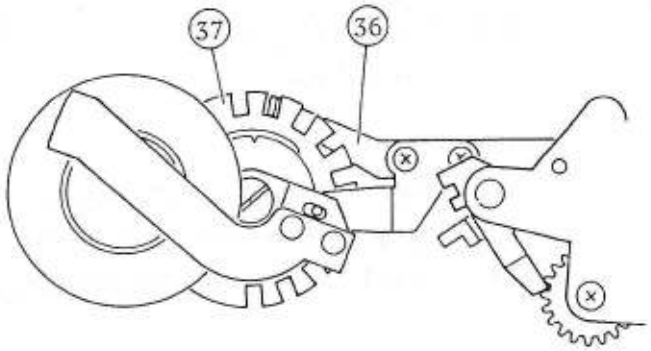


Fig. 100

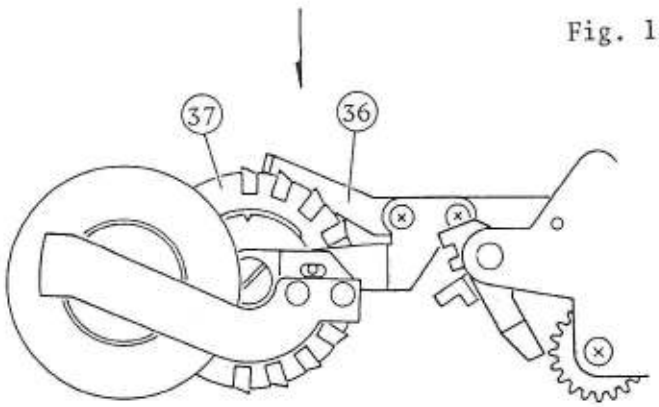


Fig. 101

C. Check and adjustment of wind stop pawl.

1. Check

When the signal lever is disengaged out of the slot, clearance between top of the stop pawl and the circumference of the 2nd winding gear should be 0.4mm to 0.7mm.

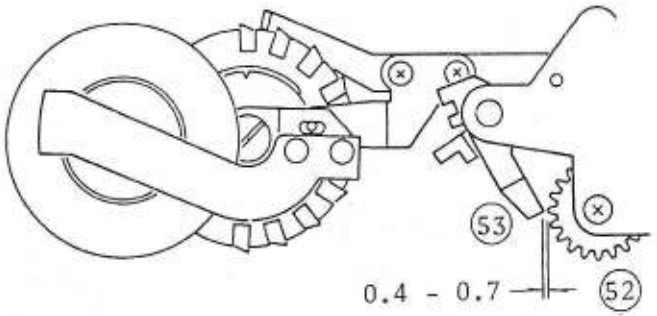


Fig. 102

2. Adjustment is made by bending fork of the stop pawl.

Fig. 103

D. Adjustment of red mark and film counter

1. Check

a. When the film is advanced, the figure should appear in the film counter window, but red mark should disappear.

b. After releasing the shutter, the red mark should appear in the window as shown in Fig. 104.

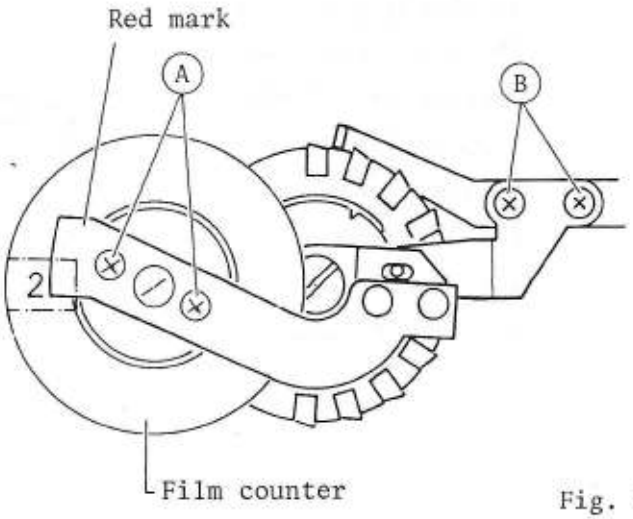


Fig. 104

2. Adjustment

a. Film counter

Fine adjustment is made by moving the film counter in loosening its two screws (A) .

Note: Change mesh of the film counter gear when firther adjustment is required.

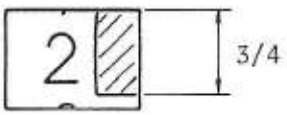


Fig. 105

b. Red mark

Adjustment is made by moving the red mark lever in loosening its two screws (B) .

c. After adjusting the film counter and red mark apply some adhesive to each screw.

4

FLATNESS OF BAYONET-RING SURFACE AND ADJUSTMENT OF FINDER INFINITY

4-1 Flatness of bayonet-ring surface

After completing the adjustment of the rackplate of text "3-3", this chapter should be done.

A. Measurement

1. Rotate the revolving ring counter clockwise and align the alignment mark with the index line. (Fig. 106 A)

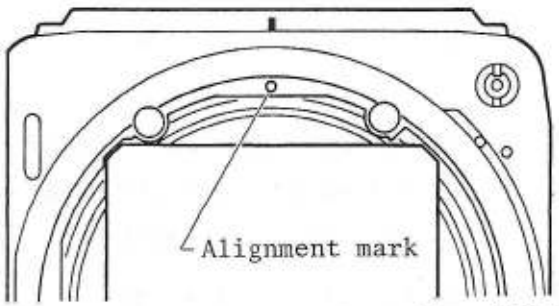


Fig. 106-A

2. Set the camera body on the RZ-1 measuring stand by facing the alignment mark to same direction with the dot of the stand.

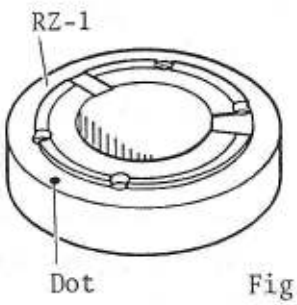


Fig. 106-B

Note: Four camera back mount pins should correspond with four holes of the RZ-1 stand.

3. Rotate the focusing knob approximately 1/8 turn from infinity, stopping position.

4. Measure three points (A) , (B) and (C) on the bayonet ring with the dial gauge. (Fig. 107)

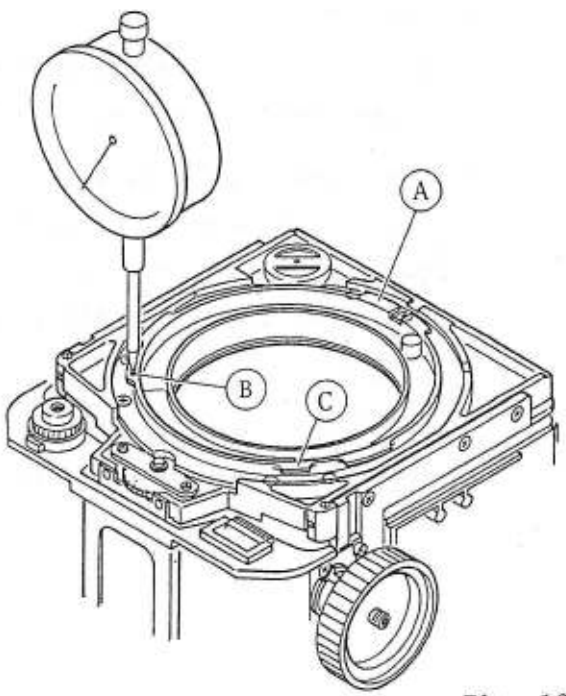


Fig. 107

For example

1) Make the (A) point zero by setting the dial gauge.

2) When measuring other two points (B) and (C) , the both points should be within ± 0.1mm.

5. If it is out of the tolerance.

a. Remove the six screws for the bayonet ring and then carefully lift up the ring and look into any adjusting washers under the ring.

b. If there are some washers, remove them and then tighten the six screws again.

c. Measure three points again.

d. Adjust the dial gauge to zero at the highest point of (A) , (B) and (C) .

e. Write down difference of the other two points on a paper.

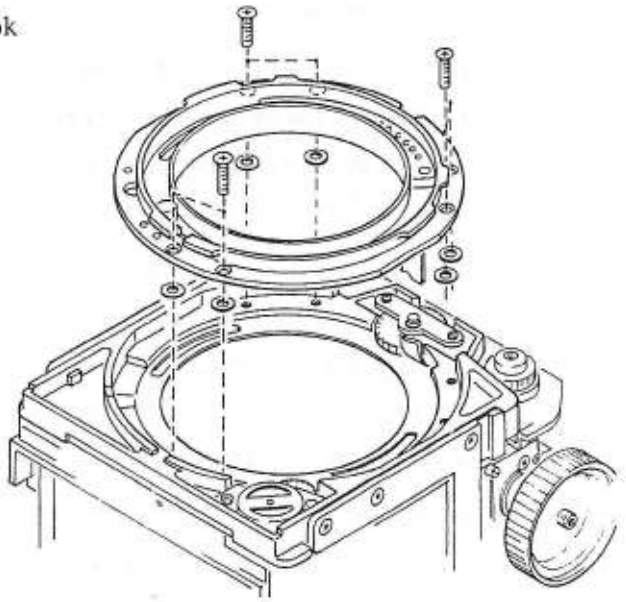
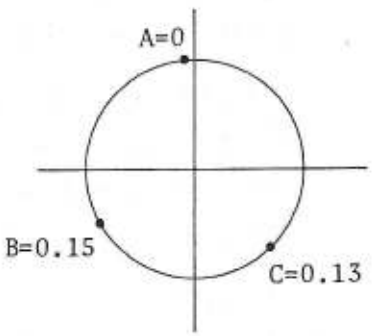


Fig. 108

B. Adjustment

1. Lift up the bayonet ring carefully after removing the six screws.

2. Put proper thickness washers on the two screw holes at each point to adjust the three points (A) , (B) and (C) within tolerance.



3. Carefully install the bayonet ring without derailing the washer and tighten the six screws.
Then check the three points.

4-2 Setting infinity position

1. Loosen the two set screws (D) in bottom of the front board. (Fig. 109)
2. Also loosen the two stopping screws (E) until they just out approximately 0.2mm from the front board.
3. Put the RZ-2 block gauge on the RZ-1 stand and set the dial gauge to zero. (Fig. 110)
4. Put the camera body on the RZ-1 stand and put back the bellows by rotating the focusing knob until it s stops.
5. Screw in one of the (E) screws until the dial indicator points +0.05.
6. Strike the front board on the body by quickly turn the focusing knob back and forth and then measure it again and adjust again.
7. Adjust the other side as the same.
8. Tighten the two set screws (D) and apply some adhesive on the head of the screws.

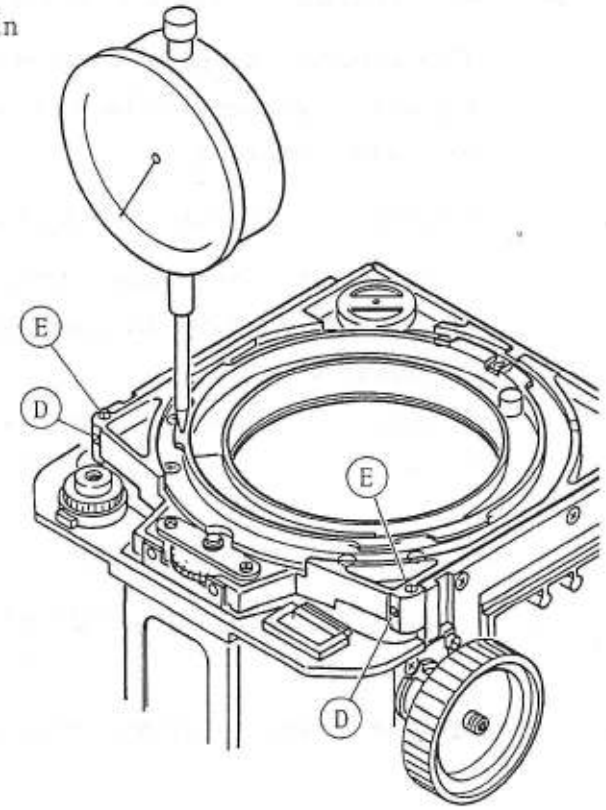


Fig. 109

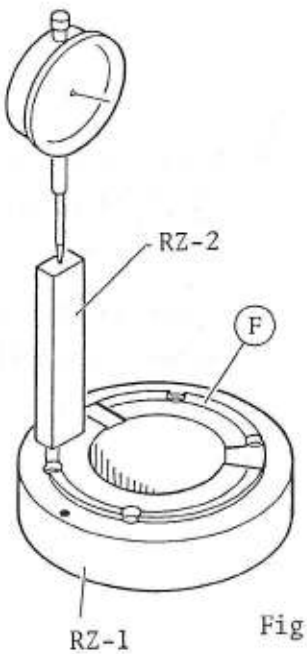


Fig. 110

4-3 Adjustment of finder infinity

This chapter should be done on condition that the adjustment of the bayonet ring surface flatness and the set of body infinity position have been completed.

Necessary instruments and tools.

1) Collimator for finder focus
2) 110mm/f2.8 lens, But lens flange back is OK.
3) Magnifier 10 x
4) RZ-3 Adjusting driver
5) RZ-4 Height gauge for the hook

A. Adjustment finder infinity

1. Check the operation of the mirror holder in releasing and charging the mirror.

Note: Be careful play and warp of the mirror holder at charged position.

2. Loosen the (A) each set screw for the (B) each focus-adjust screw. (Fig. 111)

   Screw in the three focus-adjust screws until they stop with the RZ-3 driver.

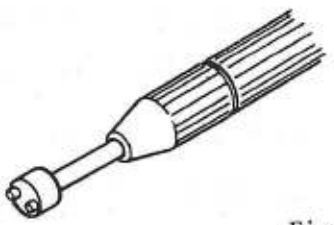


Fig. 111

3. Return the three screws equally two turns. (RZ-3)

4. Attach the 110mm/f2.8 lens and focusing screen to the body and check the finder infinity. (Magnifier and collimator)

5. When adjusting, equally loosen or tighten the each three screw.

6. After adjusting, tighten the each set screw and apply some adhesive to the set screws.

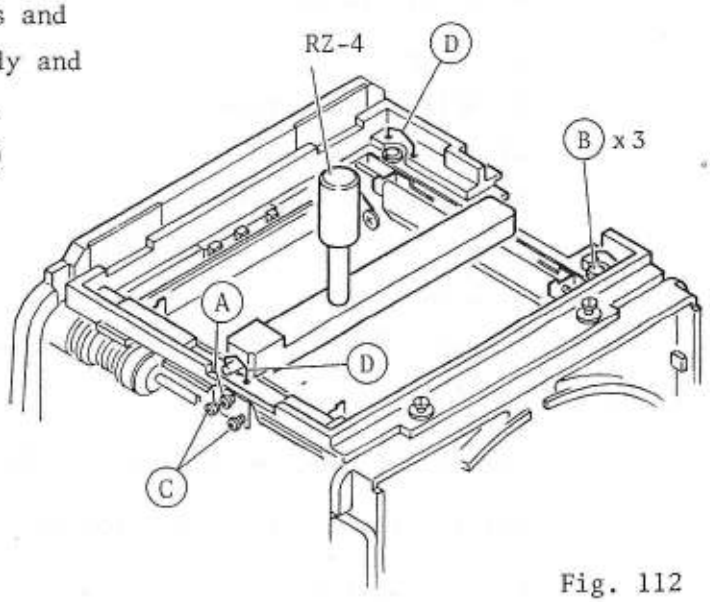


Fig. 112

B. Adjustment of finder screen hooks

1. Loosen the two set screws (C) for the each hook.

2. Determine the hook height by using the RZ-4 hook height gauge. Then tighten the two screws for the each hook and apply some adhesive to the screws.

Note: If the interlock of the hooks with the cone pins of the screen is very shallow and rather liable to slip off, bend the hooks inside with pincers.

C. When adjusting the finder infinity without using a collimator:

Necessary tools

1) Chark
2) Roll holder frame
3) 110mm/f2.8 lens
4) Magnifier 10 x
5) RZ-3 Adjusting driver
6) Ground glass
   Note: Put 0.05mm thickness washer on its four corners.
7) Tripod

1. Attach the lens and the roll holder frame to the camera body.
2. Set the camera at 2 - 3 meter distance from a chart.
3. Set the aperture ring to F2.8 and T-lever to T.
4. Release the shutter.
5. Best focusing point through the lens:

a. Attach the ground glass on the film rails.

b. Adjust the best focusing point on ground glass by turning the focusing knob. (Use magnifier)

6. Carefully set the set lever to charge the mirror. But must keep the best focusing point.
7. Check the finder focus.
8. Adjust the finder focus by turning the three adjusting screw equally to correspond it to the best focus point through the lens.

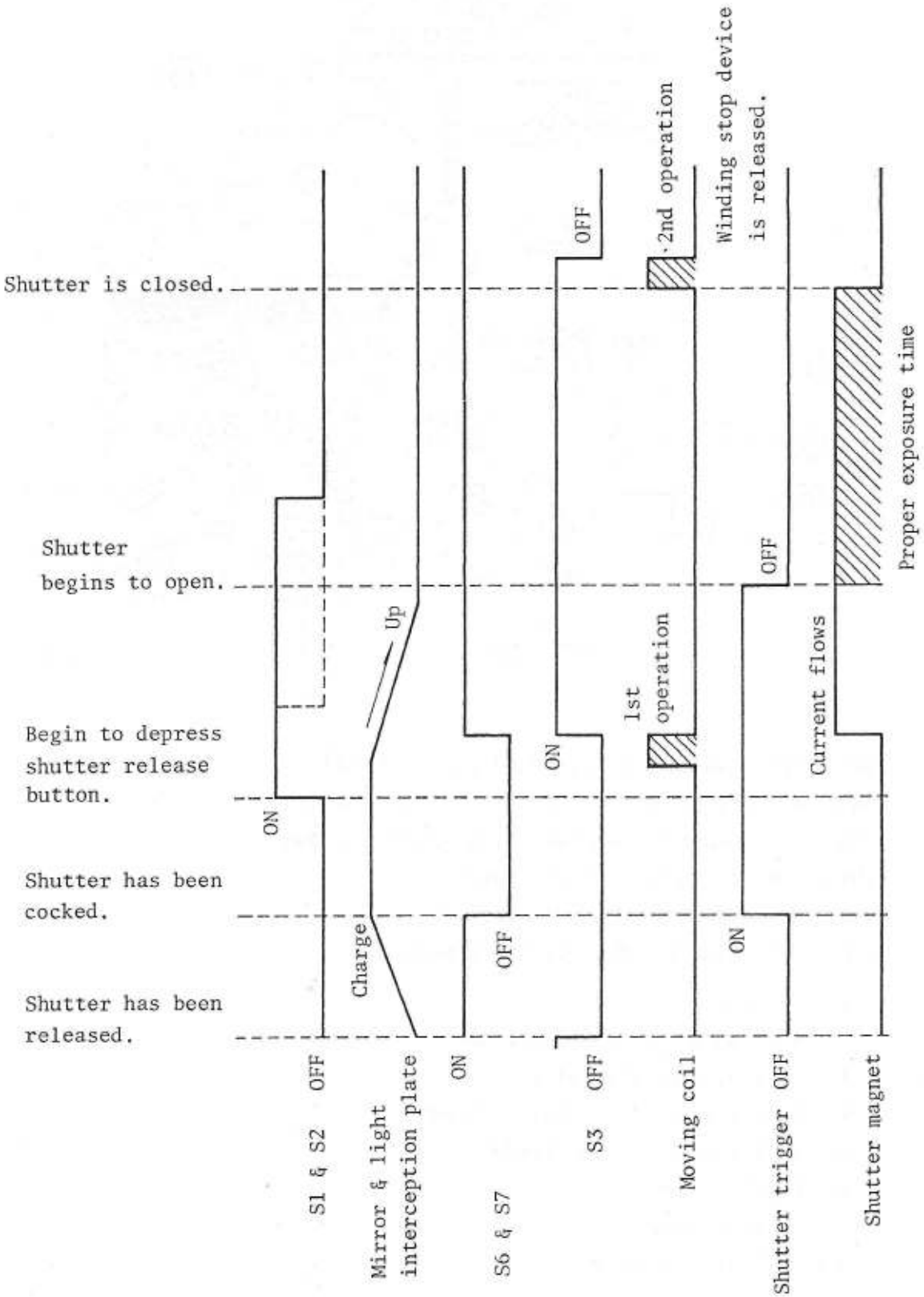
4-4 Before installing the FPC board into the body, following checks are requisite.

1. Attach the film holder with a film to the camera body and then release the shutter at the mechanical position.
2. With the cocking lever pressed down and the R-M lever shifted to M, the S7 switch should be in OFF.
   The S7 switch should be turned on after releasing the shutter.
3. ON-OFF function of the S7 and S8 switches and operation of the stop lever
4. When the cocking lever is returned to its starting position, the S6 switch should be turned off.
5. Lock-finish position: 104°30' ± 0°20'
6. Operation of finder screen masks
7. Operation of pack plate and focusing knob

5

ELECTRONIC CIRCUIT · SIGNAL-TRANSMITTING TERMINALS · SWITCH

TIME CHART IN CASE OF ELECTROMAGNETICAL SHUTTER RELEASE



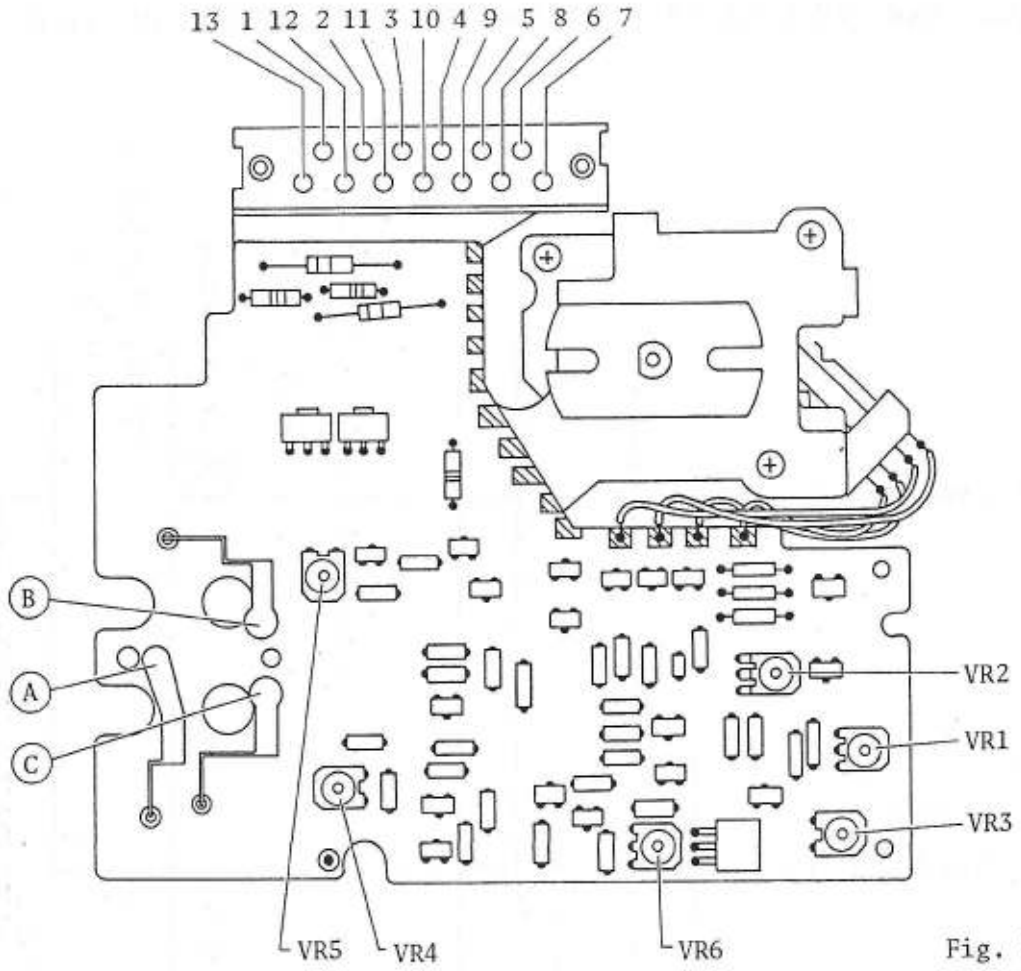


Fig. 113

VR1 : For adjusting VS=Standard volt 3.2 volt

VR2 : For adjusting Vref=Reference volt 600m volt

VR3 : For adjusting AVO=lens open aperture value

VR4 : For adjusting Shutter speed

VR5 : For adjusting GV=Flash light intensity signal

VR6 : For adjusting Battery check volt

1 : Ground

2 : VS=Standard volt 3.2 V $\pm$ 2mV

3 : AV=lens aperture value

4 : BO=Battery volt Approx. 6 volt

5 : TA=Time auto for AE-finder

6 : BP=PD finder

7 : TV=Time value

8 : Bl=Shutter magnet

9 : B2=Power supply voltage for AE-finder Approx. 6 volt

10 : SV=ISO/ASA

11 : AVO=Lens open aperture value

12 : SH=Proper exposure time memory signal for AE-finder

13 : STV=Shutter trigger

A : X synchro

B : Flash charge ready

C : GV=Flash light intensity

5-1 Check of reference voltage, etc.

With lens, Tester range: DCV S1 : ON

		Tester connection		SP dial	Output · Remarks
		Red (+)	Black (-)		
1	Power supply volt	BO term	Ground		Approx. 6 volt (S1-ON Not necessary)
2	Standard volt VS	VS term	Ground		3.2 volt ± 2mV
3	Reference volt Vref	ASA No. 3	Ground		600m volt, but change by variation of temperature
4	Power supply volt for AE-finder	B2 term	Ground	◉	Approx. 6 volt
5	Voltage for PD-finder	VS term But connect BO and BP.	Ground		3.2 volt ± 2mV
6	Shutter magnet	B1 term	Ground		When shutter is released, the tester needle should move slightly.
7	Shutter trigger	STV term	Ground		When shutter is released, the tester needle should move slightly.
8	Memory circuit of AE-finder	SH term	Ground		When shutter is released, the tester needle should move slightly.

5-2 Signal-transmitting terminals and pins

A. Finder signal-transmitting terminals

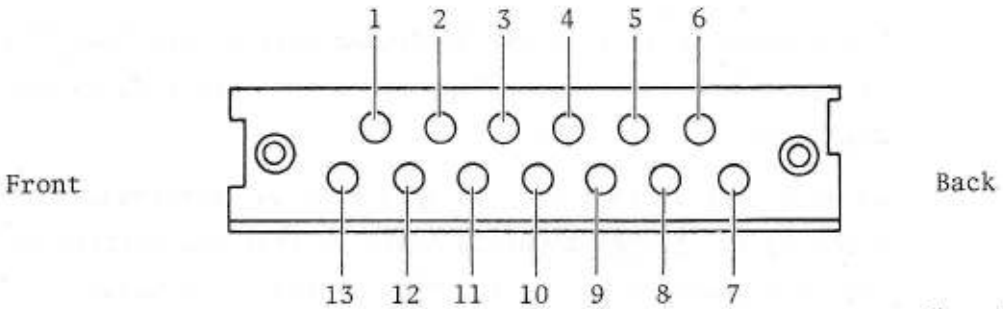


Fig. 114

1: Ground

2: VS Standard voltage 3.2 volt ± 2mV

a. When the S1 switch is turned on with RZ-lens, the output voltage should appear.

b. Adjustment is made by the VR1 variable resistor.

3: AV Lens aperture value

a. When the S1 switch is turned on, approximately 400m volt should appear at full open aperture.

b. When the aperture ring is turned from open aperture to minimum, 50mV ± 5mV will be decreased at every one stop EV.

Example: F2.8 lens

F2.8	400m volt
4.0	350
5.6	400
8.0	250
11	200
16	150
22	100
32	50

4: BO Battery voltage Approx. 6 volt

5: TA Time Auto for AE-finder

Signal transmitting terminal for AE-finder

a. The circuit voltage in the AE-finder will remain less than a predetermined reference voltage when the measuring button is depressed.

However, the voltage will go up across the reference voltage when reaching the proper exposure time, so that the current will flow into the camera body circuit through the TA terminal to close the shutter.

b. When release the shutter in connecting the TA terminal to GND, the shutter should be opened. When the TA term. is disconnected, the shutter should be closed.

6: BP For PD-finder

a. The current will flow into the finder circuit for 15 sec. since depressing the measuring button of the finder.

b. When the S1 switch is turned on in connecting the BC and BP terminals, output 3.2 volt will appear on the VS terminal.

7: TV Time Value

Following output voltage should appear with the lens when the S1 switch is turned on.

Vref: 600mV S1: ON

Shutter speed	TV output [mV] Approx.	Shutter speed	TV output [mV] Approx.
1/400	0	1	415
1/250	15	2	465
1/125	65	4	515
1/60	115	8	565
1/30	165	B	None
1/15	215	◉	None
1/8	265		
1/4	315		
1/2	365		

8: B1 For shutter magnet circuit

a. Output signal from the S-magnet should appear 10m sec. later from the S2 switch is turned on.

b. When the output appears, measurement of the PD-finder will be stopped at once.

9: B2 Power supply voltage for AE-finder 6 volt

Approximately 6 volt should appear at setting the SP dial to ◉ when the S1 switch is turned on.

10: SV For ASA

Following output voltage should appear with the RZ lens when the S1 switch is turned on.

ASA	Output [mV] Approx.
25	0
50	50
100	100
200	150
400	200
800	250
:	:
6400	400

11: AVO For lens open aperture value

Following output voltage should appear when the S1 switch is turned on.

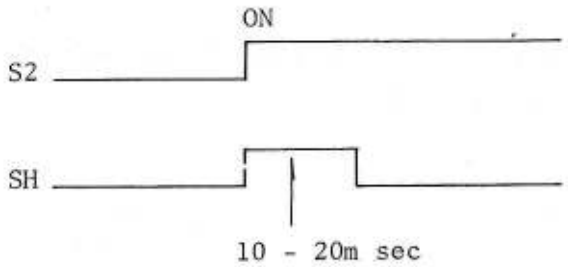
Interchangeable lens	Output [mV] Approx.
F2.8	200
F3.5	167.50
F3.8	157.50
F4	150
F4.5	132.50
F6	92.50
F8	50.00

12: SH Proper exposure time memory signal for AE-finder

a. When the MC (Moving coil) operates for 10 - 20m sec. from the S2 switch is turned ON, the signal will go into the finder through the SH terminal to memorize the proper exposure time.

b. When check it with a synchro-scope.

The following waveform and approximately three volts will appear.



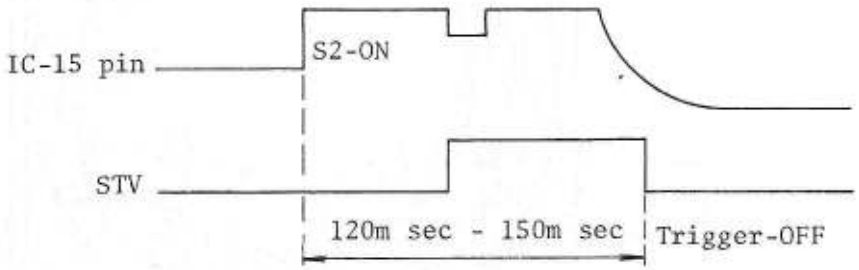
However, when check it with a DCV-tester, the needle of the tester will move slightly.

13: STV Output signal from shutter trigger circuit

a. When the mirror is raised and the trigger switch is turned off, the output signal will appear on the STV terminal.

b. Delay-time of the mirror-raising operation can be measured with a synchro-scope as follows,

Channel 2 . . . . . STV term
Channel 1 . . . . . IC 15 pin



The delay time limit should be within 120m sec to 150m sec.

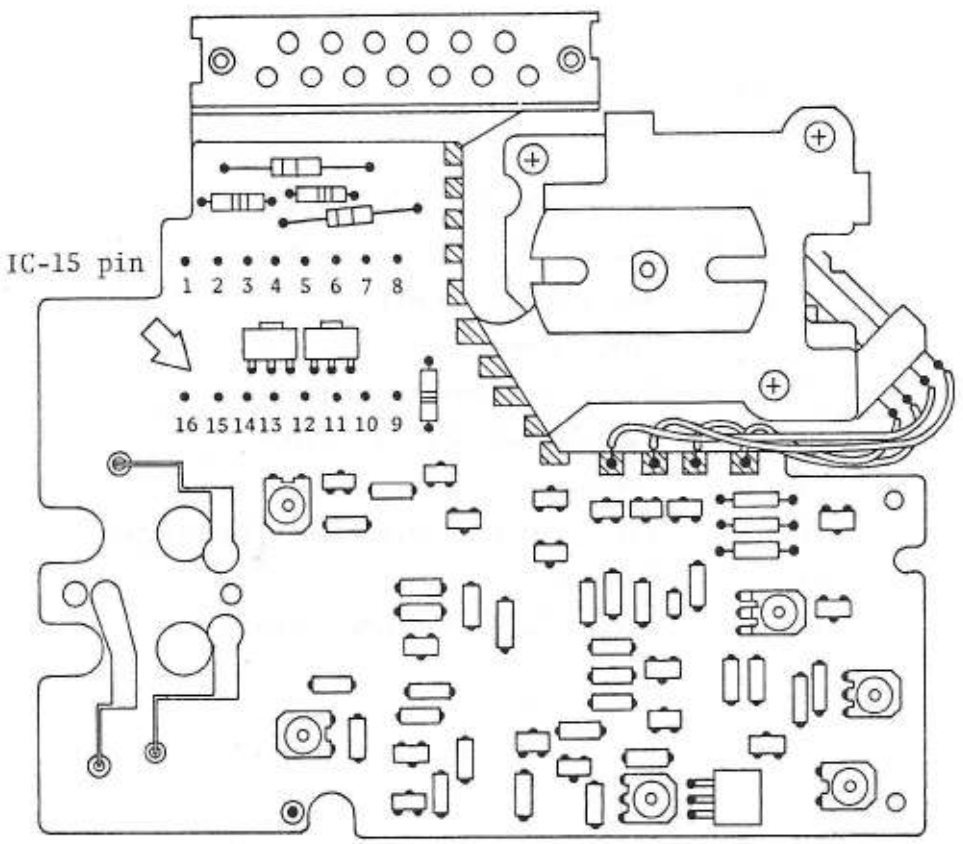


Fig. 115

B. Lens and shutter signal transmitting pins

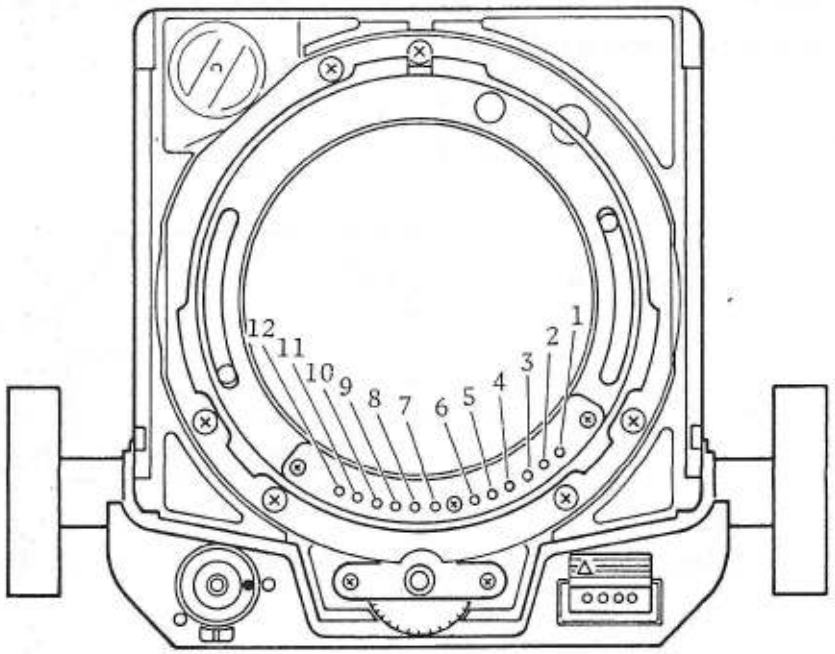


Fig. 116

1: AV	For aperture value signal
2 and 3:	For shutter trigger switch
4 and 6:	For shutter magnet
5:	For X-synchro
7:	Time/Normal switch - Normal
8:	Time/Normal switch - Time
9:	Ground
10:	AVO For open aperture value signal
11:	Common
12:	Vref For Reference voltage

C. Winder signal transmitting terminals

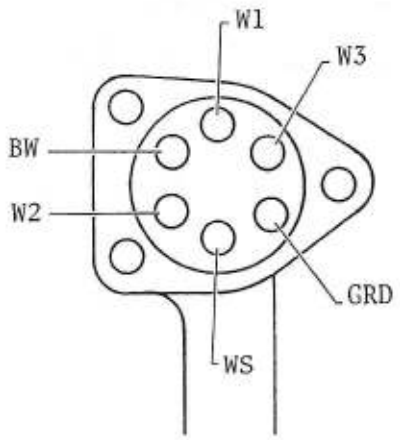


Fig. 117

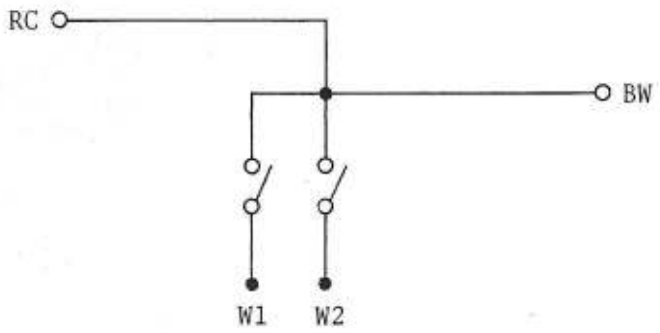
1. W3: Winder-operation preventing signal:
During operation of the shutter, the input signal will be applied through W3 terminal into the winder to prevent operation of the winder-actuating knob.
It is approximately 6 volts.

2. W1: Winder-stop signal:
When the S8 switch is turned on while the winder operates, the winder stop signal will be applied through the W1 terminal into winder circuit.

3. BW: 6 volt DC output

a. Approximately 6 volt DC output is available through BW terminal from 9 volt winder power supply.

b. This 6 volt output is also applied to a terminal in the RC outlet.



4. W2: Reverse rotation signal for winder
When the S9 switch is turned on while the winder operates, the signal will be applied through the W2 terminal into the winder circuit to force reverse rotation.

5. WS: Winder start signal

a. In case of the camera without lens or with RB lens, the start signal appears by detaching your finger from the shutter release button.

b. In case of the camera with RZ lens, the start signal appears when shutter is closed.

6. Ground

D. ASA signal transmitting terminals RZH

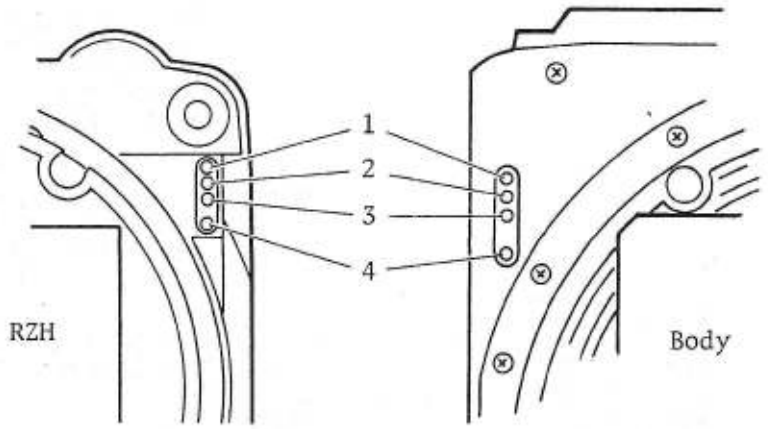


Fig. 118

Fig. 119

1. Ground
2. ASA value
3. Vref. 600m volt
4. For future use

Note: When the No. 3 terminal is connected to No. 1 terminal of the RZH, the tester should indicate apploximately 1200Ω.

E. Hot shoe flash signal terminals

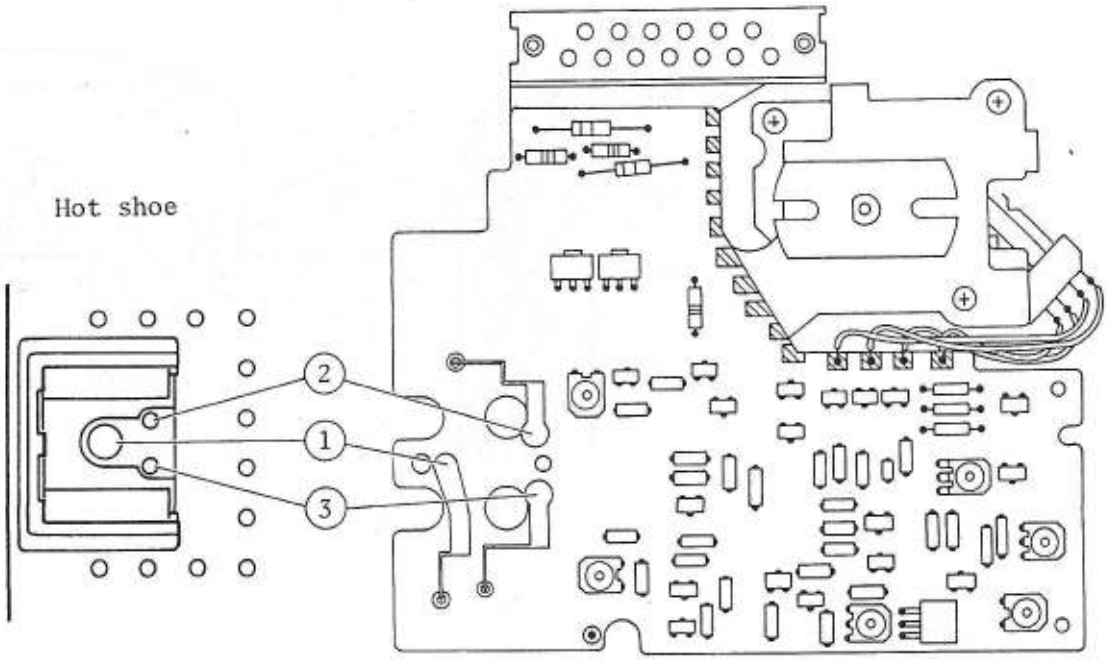


Fig. 120

Fig. 121

1 : X-synchro
2 : Flash ready signal
3 : GV flash light intensity signal

F. RC-outlet

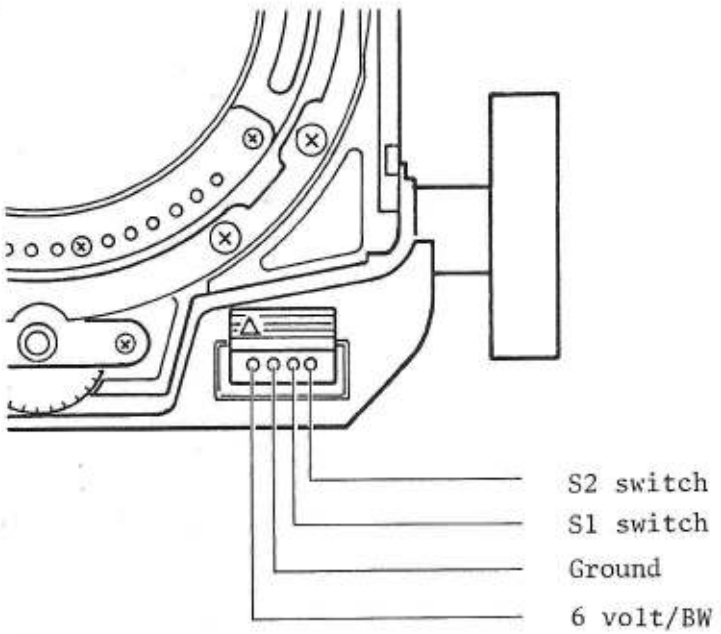


Fig. 122

5-3 Each switch operation

1. SO: Power supply switch

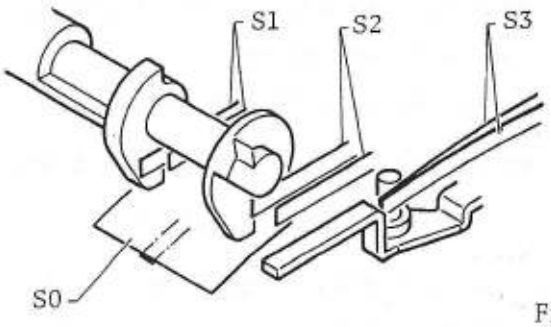
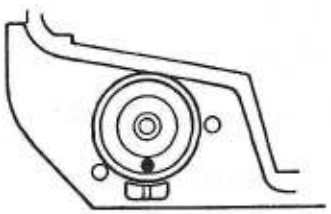
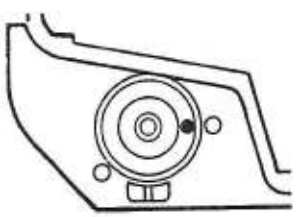
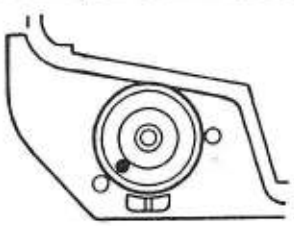


Fig. 123

	Shutter selector dial	SO SW	Remarks
1		ON	The SO switch should not be turned off upon depressing the shutter button.
2		OFF	
3		OFF or ON	The SO switch should generally be OFF, but ON will be OK.

Be careful not to ground its red and purple leadwires and contacts.

2. S1 Circuit switch

a. 1st release stroke -- ON
When the shutter release button is depressed 0.5mm, the S1 switch should be turned on.
Then current flows in the circuit.

b. Be careful not to ground its orange leadwire and switch contact.

3. S2 MC-operation switch

a. Shutter release button 2nd stroke - ON when the shutter release button is depressed 2mm, the MC should operate.

b. Be careful not to ground its brown leadwire and contact.

4. S3 Circuit power supply maintaining switch

a. The S3 switch should be turned on,

1) While the shutter operates with the lens.
2) While the shutter release button is depressed, but without the lens.

b. The S3 switch should be turned off by means of the MC operation.

c. Be careful not to ground its purple and white leadwires and contacts.

5. S4 and S5 Dark slide switch

a. The S4 switch should be turned on when the dark slide is inserted into the film holder which is set at horizontal format.

b. The S5 switch should be turned on when the dark slide is inserted into the film holder which is set at vertical format.

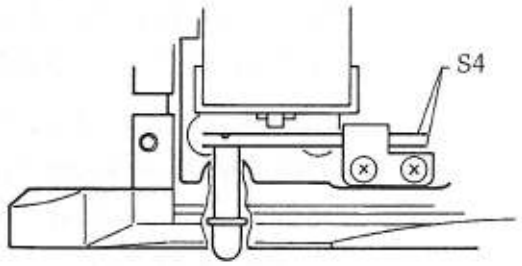


Fig. 124

c. The each switch should be turned off when the dark slide is removed.

d. When the S1 switch is turned on, the middle red LED in the finder screen should be illuminated while the S4 or S5 switch is closed.

In the above case, if the S2 switch is turned on upon further depressing the shutter release button, the MC does not operate because the shutter release signal is not generated.

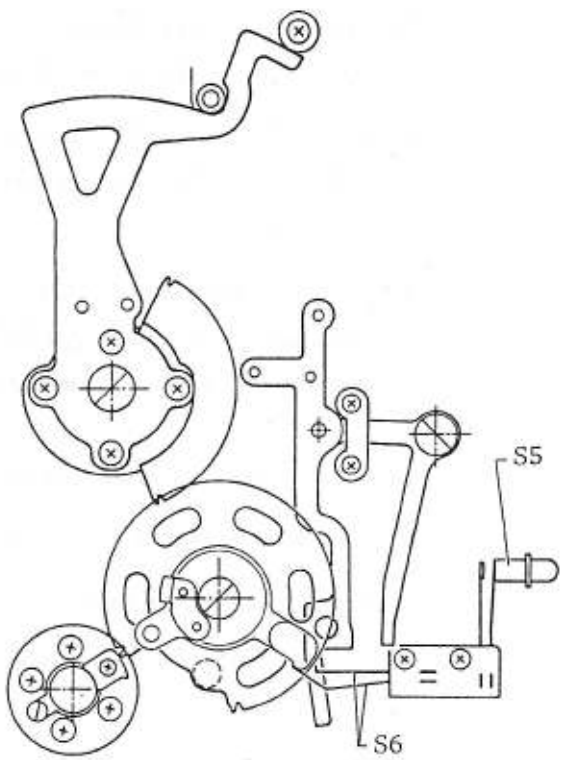


Fig. 125

6. S6 Cocking lever return switch

a. When the set lever have completely returned, the S6 switch should be turned off with clearance 1.5mm to 2mm between both switch contacts.

b. When the S6 switch is turned off, it can be possible to release the shutter.

However, releasing the shutter cannot be possible when the S6 switch is turned on.

7. S7 Wind-finish switch

a. R-M lever - Normal position

1) The S7 switch should be turned on without roll film holder.

2) The switch should be turned off with the film wound and when release the shutter, the switch should be turned on.

b. R-M lever - "M" position

1) The S7 switch should be turned off when the cocking lever is cocked.

2) The switch should be turned on when the shutter is released.

c. When S7 switch is turned on, releasing shutter cannot be possible.

d. If S7 switch is turned off after releasing, the orange LED in the finder screen will not be illuminated.

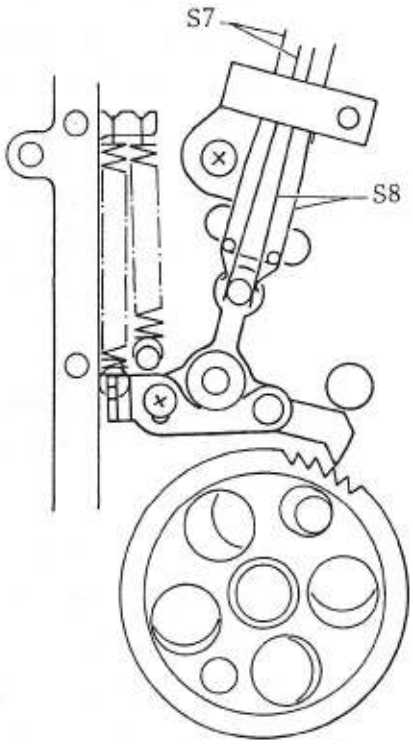


Fig. 126

8. S8 Winder-stop switch

a. S8 switch operation should be in reverse of S7 switch.

b. When S8 switch is turned on, the winder is stopped.

c. Be careful not to ground its blue and red leadwires and contacts.

9. S9 Winder-reverse switch

a. S9 switch should be turned on when the cocking lever is pressed down to maximum 110°30' ± 0°30'.

When the cocking lever is returned from the maximum angle, S9 switch should be turned off.

b. Turning on the S9 switch should make reverse rotation of the winder motor.

c. Be careful not to ground its white and orange leadwires and contacts.

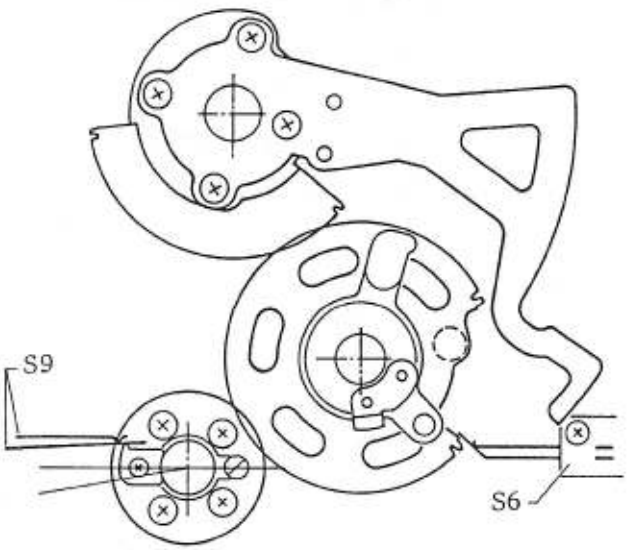


Fig. 127

10. AE/M Switch

a. The M switch should be turned on when the shutter dial is set to any shutter speeds except ◉ mark.

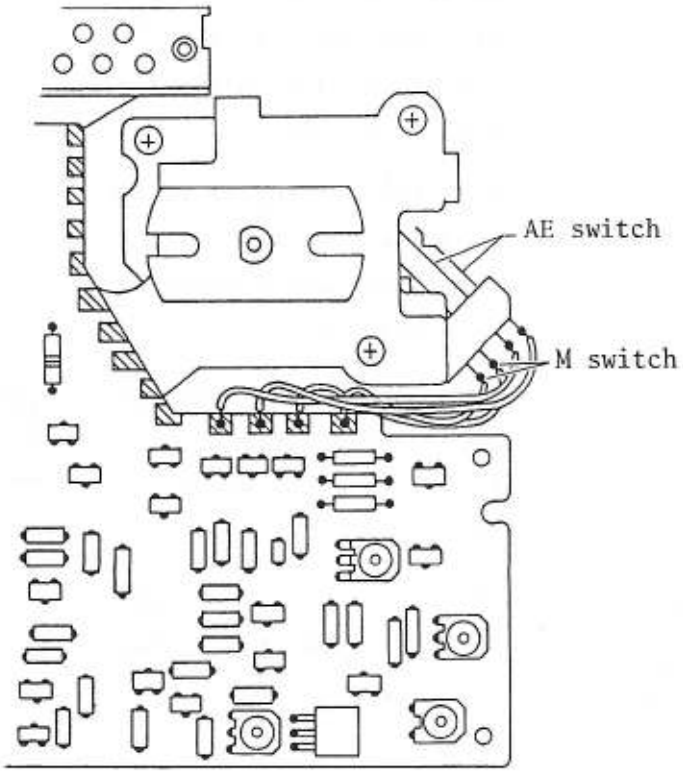


Fig. 128

b. The AE switch should be turned on when the shutter dial is set to ◉ mark.

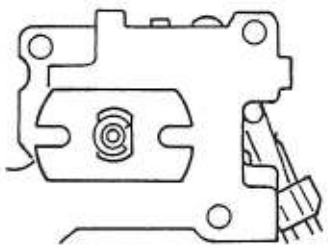


Fig. 129

5-4 GV flash light intensity signal and flash-charge ready signal

A. Adjustment of GV light intensity signal

A-1. Check

1. Set the ASA to 100 and aperture ring to F5.6.
2. Connect the DCV-tester plus terminal to the GV-output terminal and DCV-tester minus terminal to ground.

Note: It can be checked by applying ZEX-3 flash circuit tester into the hot shoe.

3. The output voltage should be 1.081mV ± 10mV when the S1 switch is turned on.
4. The output voltage will increase/decrease 54mV at every one stop F-number change.

A-2. Adjustment

Adjustment is made by turning VR5 resistor.

B. Check of flash-charge ready signal

1. Connect the flash ready signal terminal to ground.
2. The green LED in the finder screen should be illuminated when the S1 switch is turned on.

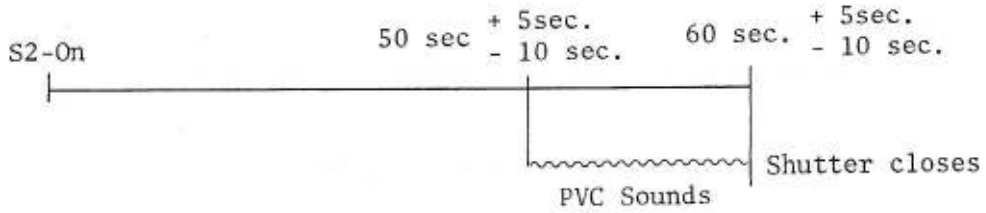
5-5 Warning buzzer

The "Timer device" for the RZ67 camera will close the shutter automatically after approximately one minute since the S2 switch is turned on in order to prevent inadvertent battery depletion.

Therefore the bulb exposure and mirror-up exposure should be finished within one minute.

A. Check of PCV buzzer

1. When the shutter speed dial is set to B, the shutter will remain open as long as the shutter release button remains depressed.
2. The buzzer should sound after approximately 50 seconds, 10 seconds later the buzzer shculd stop and the shutter should close.



B. In case of mirror-up exposure, the shutter should be released with the cable release within 50 seconds of pressing the shutter release button. If this is not done, the buzzer will sound after 50 seconds and continue for 10 seconds before stopping.

Be careful if you release the shutter with the cable release after the buzzer stops, the shutter speed will be 1/400 sec.

5-6 Drop of battery volt and flickering level of Monitor LED

A. Check of Battery voltage

1. To check the condition of the battery, insert the dark slide into the film holder and depress the shutter release button; the red warning LED should illuminate with a steady glow.
2. If the red LED flickers, it indicates that battery voltage is low and the battery should be replaced as soon as possible.

B. Flickering level of red monitor LED

B-1. Check

1. Insert the SLS-19 dummy battery into the battery chamber of the camera body and connect it to a DC voltage regulator.
2. When 4.9 volt is supplied to the dummy battery, the red LED should flicker.
3. When 4.5 volt is supplied, the red LED should not flicker or illuminate.

B-2. Adjustment

Adjustment is made by turning the VR6 variable resistor.

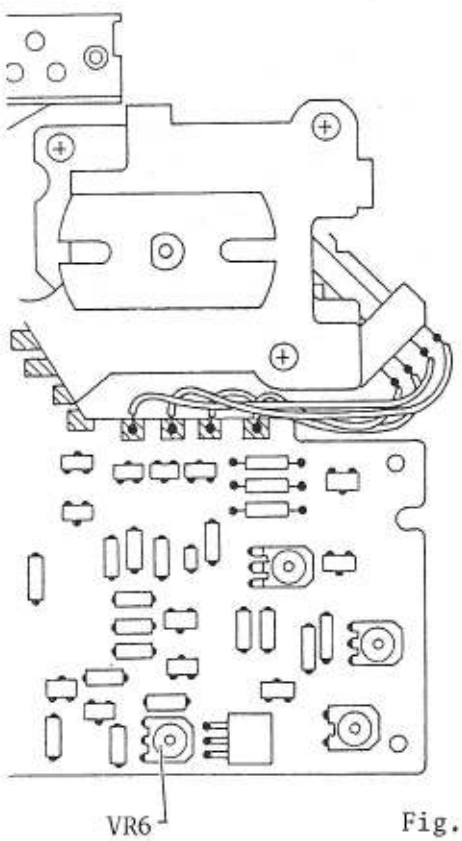


Fig. 130

C. Check of battery leakage

C-1. Wiring of dummy battery.

1. Wire the Dummy battery, Tester and 6 V. Battery as shown in Fig. 130.

2. Before measuring, insert one 6 V silver-oxide battery (4SR44) or 6 V alkaline battery (4LR44) into the battery chamber of the camera and leave it for approximately 30 sec.

3. Remove the 6 volt battery and insert the dummy battery, but be careful its polarity.

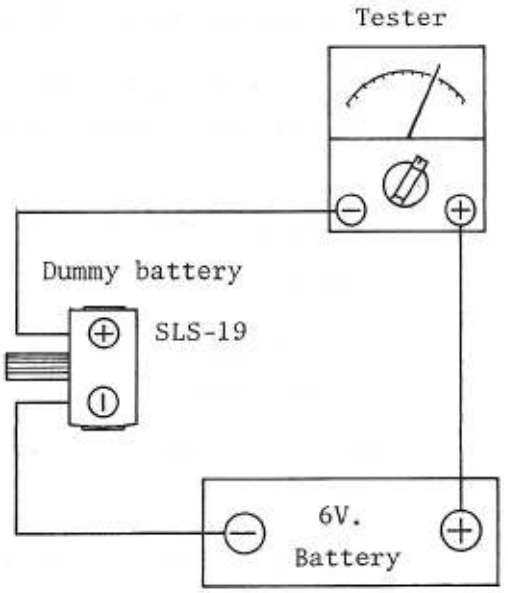


Fig. 131

C-2. Check of power consumption

1. When the S1 switch turned on, the tester should indicate 3mA to 7mA.

Note: Push the dummy battery with your finger once to check pinching the red leadwire (27) under the battery chamber.

2. The tester should indicate 16mA to 21mA upon releasing the shutter at 1 sec. or 4 sec.

5-7 Monitor LEDs

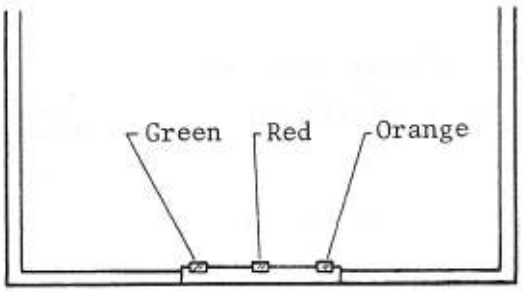


Fig. 132

S1 : ON

LED	Illuminate
ORANGE	1) Cocking lever not set (Mirror-up) 2) Cocking lever has been only partially depressed. A. R-M lever - normal position 1) Without roll film holder 4) With empty roll film holder 5) Film has not advanced completely B. R-M lever - M 6) Cocking lever has not been depressed sufficiently.
RED	1) Without removing dark slide from the film holder.
GREEN	1) When a Mamiyalite MZ or ZE is connected to the hot shoe and fully charged.

5-8 Check of MC

1. Remove a battery from the battery chamber.
2. Unsolder the pink (31) and black (32) leadwires from the MC.
3. Check it by a ohm tester

   Tester range : X 1
   Tester terminal Red (+)
   ..... Pink (31) leadwire
   Tester terminal Black (-)
   ..... Black (32) leadwire

   Tester should indicate approximately 6Ω and the MC should operate in thrusting out with a sound.

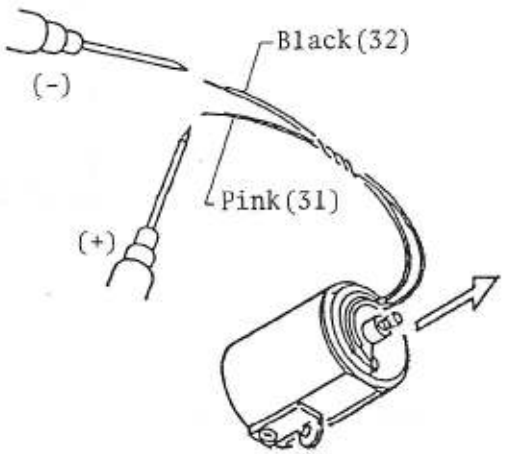


Fig. 132-A

4. If the MC does not operate, replace it with new one.

5-9 Check and adjustment of shutter speed

A. Measure it by FL-400 type shutter speed tester

Necessary instrument etc.

1) FL 400 shutter speed tester with M645 sensor head

2) 110mm/f2.8 lens

3) Outer cassete of film holder

1. Set the function knob of the tester to "SH-SPD" for lens shutter.
2. Attach the 110mm/f2.8 lens and the outer cassete to the camera and set the aperture ring to F2.8.
3. Shift the R-M lever to M and set the release button collar to electromagnetic position.
4. Install the camera on the camera base of the tester and correspond the lens optical axis to the beam axis of the tester by rotating the handle.
5. Measure each shutter speed by releasing the shutter.
6. Adjustment of shutter speed
   Adjust is made by turning the VR4 variable resistor.

2. Set of camera

a. Aperture ring: f2.8 (full open)

b. R-M lever: M

c. Electromagnetic position

3. Measurement

Set the sensor with 6 x 7 mask into the outer cassete film rails. Then measure each shutter speed by releasing the shutter.

4. Adjustment of shutter speed

Adjustment is made by turning the VR4 variable resistor.

6

TROUBLE SHOOTING

6-1 Cannot release the shutter at electromagnetic position. (R-M lever - M)

Phenomenon

1) When the mirror is up, the orange monitor LED illuminates when the S1 switch is turned on.
Though releasing the shutter is impossible after cocking the cocking lever.

1	Pink(31) and Black(32) leadwire ----- Poor sholder	
2	MC-operation --- Malfunction	→ See text "5-8"
3	S2 switch ON-OFF?	→ "5-3 ∿ 3"

2) After cocking the cocking lever, cannot release the shutter upon depressing the shutter release button.
However, the orange LED illuminates.

4	After cocking S6 SW should be turned OFF	
5	Operation of M5100-1540 S6 SW lever?	
6	S7 SW should be turned OFF.	→ See text "3-5"
7	Multi-lever in Fig. 52 is in right position?	

3) After cocking, cannot release the shutter upon releasing the shutter button.
However, the red LED illuminates.

8	Has S4 SW or S5 SW be turned on?
9	Leadwires for S4 SW or S5 SW --- Short

6-2 While the cocking lever is returned from its maximum cocking angle, try to depress the shutter button. However the shutter should not operate.
If operates and the orange LED illuminates, check following point.

1	S6 switch should not be turned off when the cocking lever is on the way of from its maximum angle.

* If it is turned off, continuous sequence photography with using the winder will be impossible.

6-3 All shutter speeds except ◉ become 1/400 sec.

1	ON-OFF function of AE/M switch	→ See text "5-3 ∿ 10"
2	S3 switch ... Malfunction	→ See text "5-3 ∿ 4"
3	Time/Normal switch of the lens ... Malfunction	→ See text "6-4"

6-4 Depressing the coking lever will be possible while time exposure has operated.

1	Time/Normal switch of lens --- Malfunction

Note: 1) When the time lever is set to normal position (N appears), lens signal pin on the lens

⑦ - ⑪ --- Continuity

⑪ - ⑧ --- Open

2) When the time lever is shifted to time (T appears)

⑦ - ⑪ --- Open

⑪ - ⑧ --- Continuity

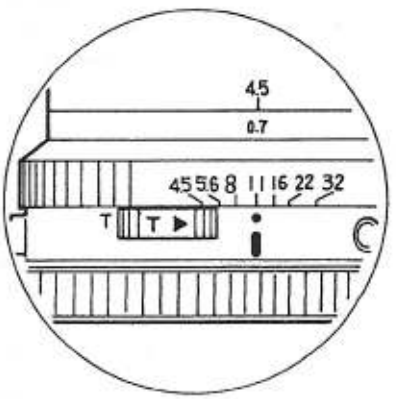


Fig. 136

6-5 Monitor LEDs don't illuminate.

1	Contact efficiency of the S0 switch --- Poor	→ See text "5-3"
2	B0 power supply terminal --- Should be 6 volt	→ "
3	S1 switch --- Malfunction	→ "

6-6 When mirror is up, the orange LED does not illuminate with the S1 switch turned on.
However, the MC will operate.

4	S7 switch --- Malfunction After releasing, it should be turned on.	→ See text "3-5"

6-7 When mirror is up, the orange LED illuminates for a moment and is put out with the S1-ON.

5	TR 20 --- Poor solder

6-8 The orange LED illuminates during shutter operating.

6	R4 (30 kΩ) --- Poor solder

6-9 When the dark slide is inserted, the red LED does not illuminate with S1-ON.

7	Battery voltage
8	ON-OFF of S4 · S5 When the dark slide is inserted, the S4 or S5 should be turned on.

6-10 When the Mamiyalite MZ18R or 36R is charged, the green LED does not illuminate with S1-ON.

9	No connection to hot shoe?
10	R55 (300Ω) --- Poor solder

6-11 Without MZ flash, the green LED illuminate with S1-ON.

11	Contact of flash-charge ready signal --- short?
12	Blue leadwire (5) from green LED --- short?

6-12 Battery exhaustion

1	Red (27) from battery case Purple (33) Red (34) from SO Purple (39) leadwires --- short	→ See text "5-6 ∿ c"

6-13 When Time exposure or Bulb exposure is made, one minute timer device operates, but warning buzzer does not sound.

1	H-IC6292 - No. 5 pin --- Poor solder

6-14 Proper exposure indication green LED in PD-prism finder does not illuminate or illuminate, but it stays at "+", never change.

1	Finder signal transmitting terminals --- Dirt?	→ See text "5-2"
2	AV, SV and TV --- --- Output signal	

6-15 Camera does not operate properly with remote control.

Phenomenon

1) When the camera with receiver MZ is left, the battery will be exhausted quickly.
2) Shutter does not operate at bulb upon releasing by the remote control.
3) When camera with RB lens is operated by the remote control, camera does not operate.

1	Blue (23), Yellow (21) and Green (22) leadwires from RC-outlet --- --- wrong wiring?

6-16 Mamiyalite MZ fires at Auto and Manual, but does not fire at MZ-auto.

1	Hot shoe and GV flash light intensity signal contact --- Contact efficiency?	
2	Output voltage of GV 1081mv ± 10mV * ASA100 F5.6 S1-ON	→ See text "5-4"

6-17 Winder does not operate properly.

Phenomenon

1) While the winder start signal is generated on the WS terminal after shutter closing, the winder does not operate even if pushing the start button of the winder.
2) The winder operation will stop in the midst of cocking.
3) After winding, the winder will continue to drive for approximately 15 sec.
   Then it stops.

1	S8 switch ON-OFF function?	→ See text "3-5 ∿ A, B, C" "5-3 ∿ 8"

Note: Check point
#1) S8 should be turned off.
#2) S8 should not be turned on even if for a moment.
#3) After cocking, S8 should be turned on.

4) The winder suddenly stops in the middle of winding.

2	S9 switch ON-OFF --- Malfunction The S9 switch should be turned on at the maximum cocking angle of the cocking lever.	→ See text "5-3 ∿ 9"

5) Continuous sequence photography will be impossible.

3	S6 switch should not be turned off when the cocking lever is on the way from its maximum angle.

6-18 When the cocking lever is returned just before reaching the maximum cocking angle, the mirror rises and the shutter runs.

1	Reverse-rotation-prevention pawl --- Malfunction	→ See text "1-3"
2	Disengagement of lever for the pawl --- Bing slightly fast.	→ Replace M5100-15581 lever with new one.

7

MAMIYA RZ67 INSPECTION STANDARD

This inspection standard will be applied for the RZ67 with its lens and roll film holder.

Insert the battery into the chamber and load the film into the holder.

7-1 Attaching lens

a. Before attaching a lens to the camera body, the mirror should be charged and the shutter of the lens cocked.

b. Seat the lens on the camera body with the central index of the lens lined up with the red alignment dot of the camera body.

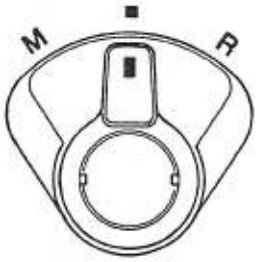
1. The lens should be secured to the camera body when the bayonet ring of the lens is rotated 50° to 80° degree.
2. If you try to rotate the bayonet ring to remove the lens without first depressing the cocking lever of the camera body, the movement of the ring should be interrupted to make it impossible to remove the lens.

7-2 Attaching the holder

1. Operation of the holder lock lever should be in proper sliding friction and should firmly lock the holder to the camera body.
2. The holder lock lever should automatically lock in place.

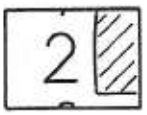
7-3 Advancing the film at normal position of R-M lever

1. When the cocking lever of the camera body is depressed, the film should be advanced in rotating the film advance knob of the holder.
2. When the numeral "1" appears in the exposure counter, the cocking lever should be automatically locked to prevent double cocking as well as at each picture frame 2, 3, ...10.



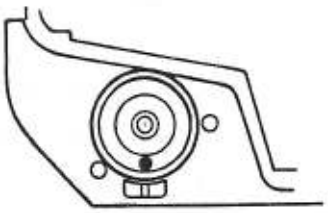
7-4 Exposure counter and Red mark

1. When the film is advanced to the next frame, the numeral in the exposure counter should automatically changed and red mark should disappear.
2. The red mark should appear in exposure counter after releasing the shutter releasing button.
3. The exposure counter should automatically return to its starting position "S" whenever the back cover is opened.

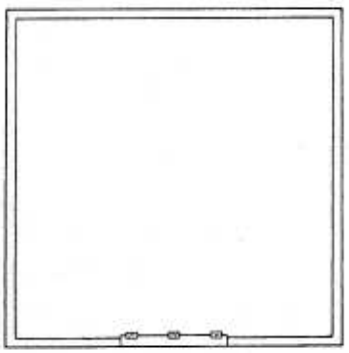


7-5 Monitor lamps at electromagnetic shutter release

1. Dark slide in holder (Red warning lamp)
   When the shutter release button is depressed without removing the dark slide from the film holder, red warning lamp should illuminate and the shutter should not be released.



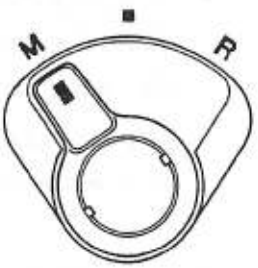
2. Cocking lever not set (Orange warning lamp)
   If the cocking lever has not been depressed or has been only partially depressed, the orange warning lamp should illuminate and the shutter should not be released when the shutter release button is pressed as well as following two cases:
   1) While the film is advanced from its start mark "S" to first picture frame "1".
   2) After fixed exposure number have been taken (10 or 20).



3. Mamiyalite charged (Green signal lamp)
   When a Mamiyalite ZE, MZ is connected to the hot shoe and fully charged, the green lamp should illuminate upon pressing the shutter release button halfway.
   Further depressing the shutter release button, the flash should fire.

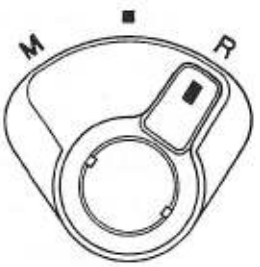
4. When the shutter release button is depressed halfway after removing the dark slide and depressing the cocking lever fully, the monitor lamps should not illuminate and the shutter should be able to release.

7-6 R-M lever

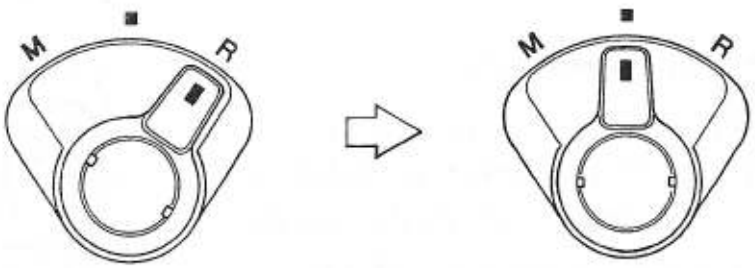


1. Multiple exposure position
   When the R-M lever is set to "M" position, pushing down on the cocking lever should cock the shutter and mirror, but should not advance the film.
2. Revolving back position

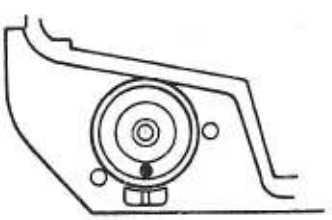
a) When the R-M lever is set to "R" position, the revolving back should smoothly be rotated and the viewfinder format should automatically changes from horizontal to vertical, or vice versa.



b) The R-M lever should automatically return from "R" to its normal position upon depressing the cocking lever or shutter release button.

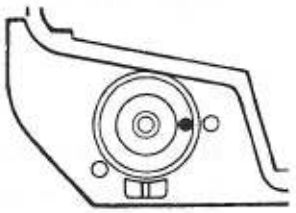


7-7 Shutter speed



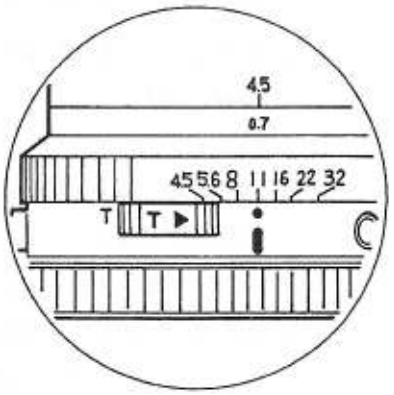
1. Aligning the collar with white dot (electromagnetic release position) should make it possible to operate the shutter at the numeral speed on the dial you select.
2. The shutter speed dial should lock in place at the ◉ position.
   If the shutter button is depressed at this position, the shutter should operate at maximum speed 1/400 sec.

3. The ◉ position should be unlocked by rotating the dial while depressing the lock release button.
4. Aligning the collar with orange dot should make it possible to operate the shutter at approximately 1/400 sec., regardless of the setting of the shutter speed dial.



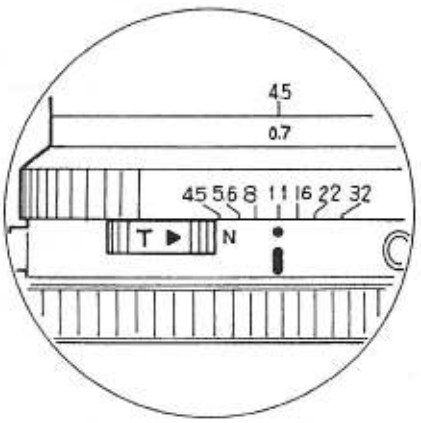
7-8 Time exposure

1. Slide the T lever of the lens until the letter "T" appears to make a time exposure.
   The shutter should remain open, regardless of the setting of the shutter speed dial, upon depressing the shutter release button.
2. The shutter should be closed with the T slide lever slided in opposite direction until the letter "N" appears.



7-9 Mirror-up operation

1. After screwing a cable release firmly into the mirror-up socket of the lens, the socket should elevate slightly to be ready for mirror-up operation.
2. The mirror-up socket should retract upon removing the cable release.



7-10 Focusing knob operation

1. Smooth rotation should be required for the both focusing knobs and it should be possible to extend the bellows fully.
2. Locking the focusing knob:

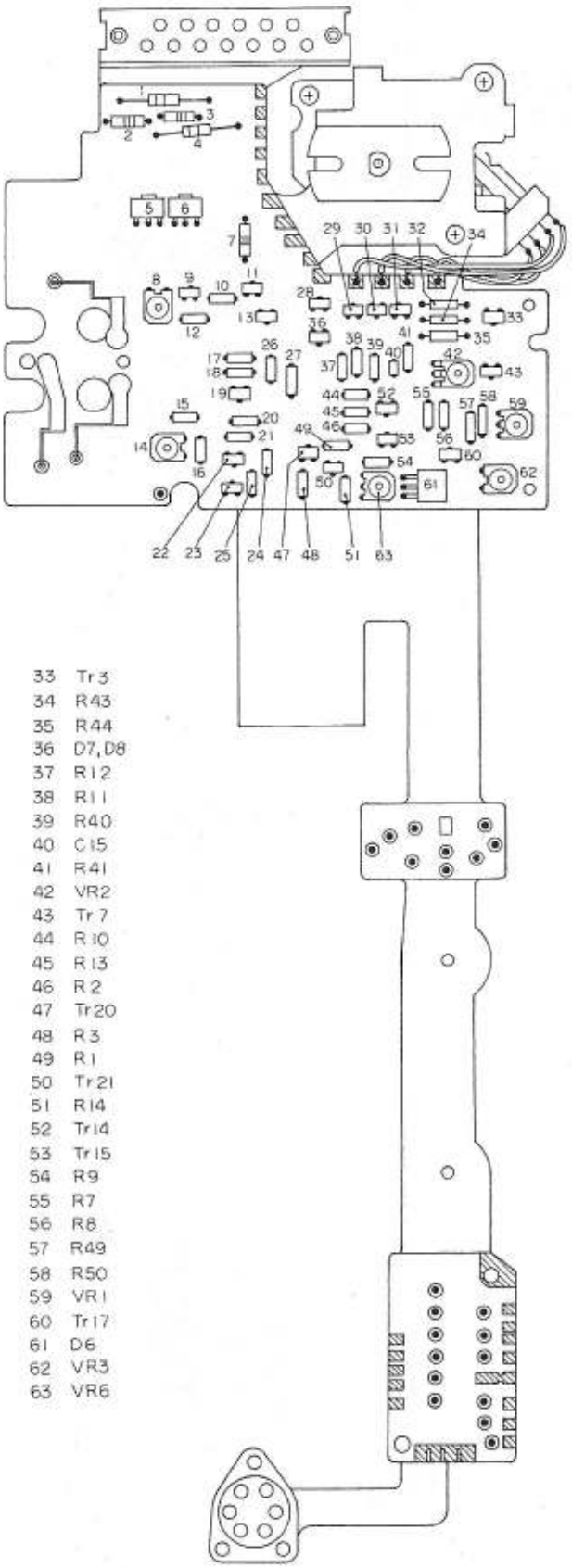
a. Focusing knob should be locked in place when the focusing lock lever is raised and is pushed forward.

b. The lock lever should stop with click at horizontal upon returning it.

7-11 Focusing hood operation

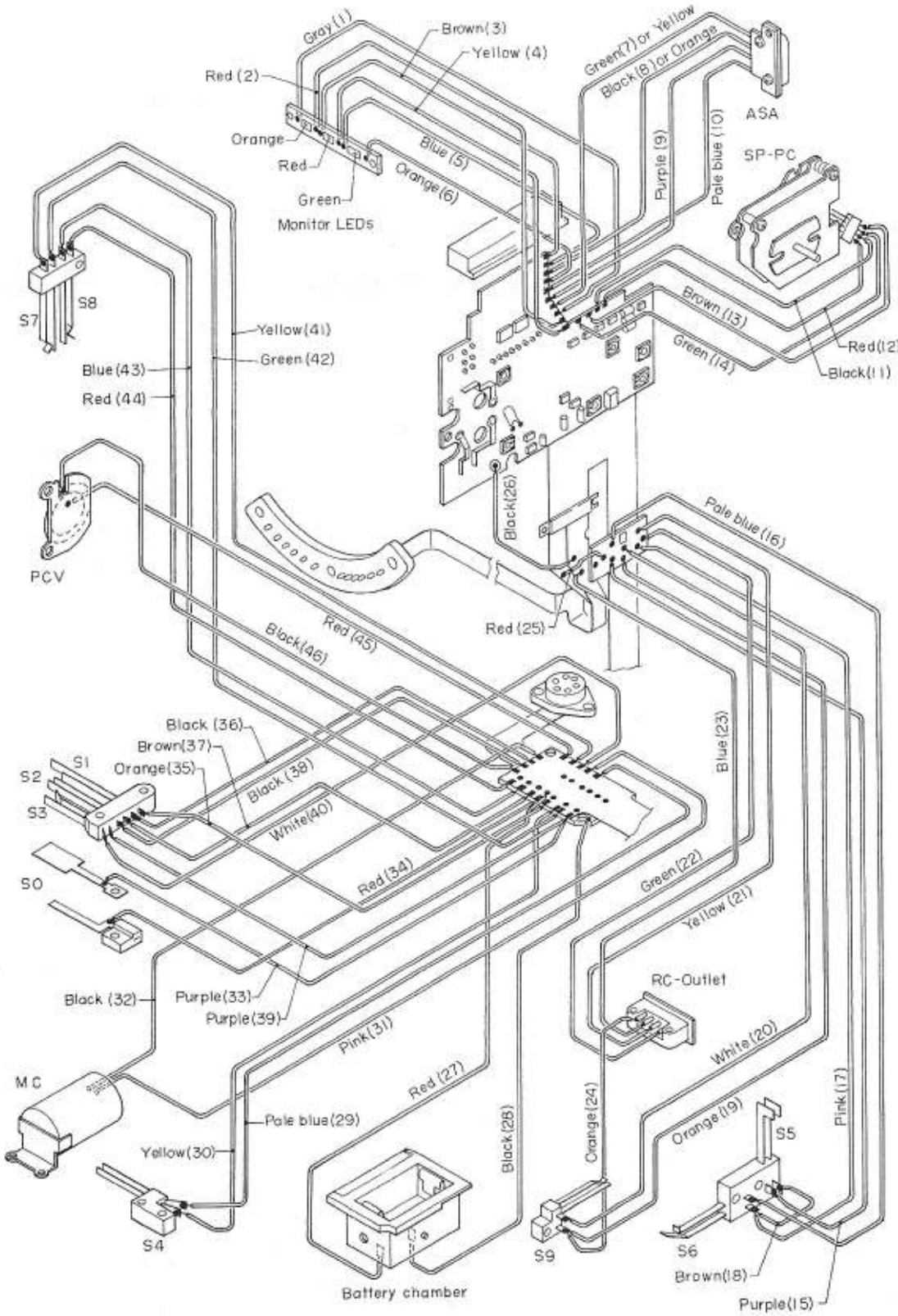
1. Raising the focusing hood should be made by merely lifting the back of the hood.
2. The magnifier should pop up into position by sliding the magnifier release slightly to the left.
3. The magnifier should lock in place upon pushing the magnifier frame down.
4. The focusing hood should be folded by gently squeezing the right and left panels of the hood together.

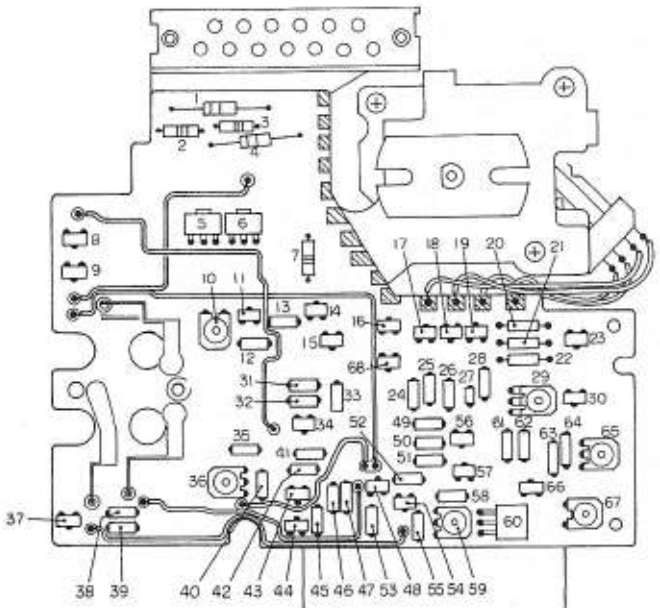
WIRING DIAGRAM



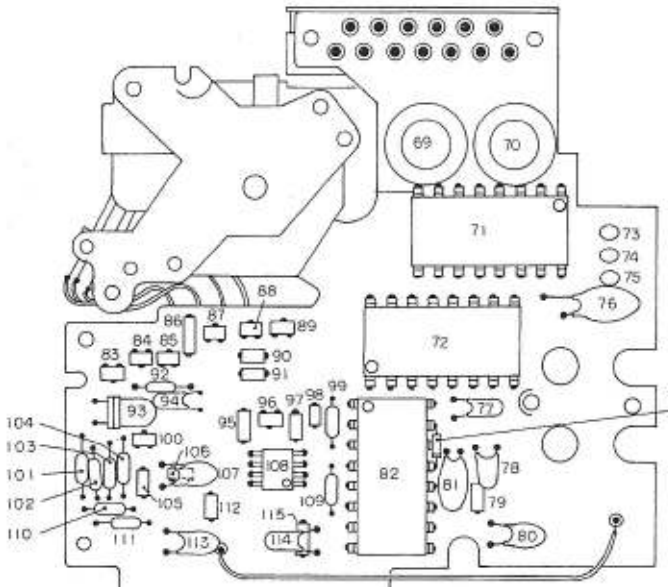
1	D10	33	Tr3
2	R17	34	R43
3	R18	35	R44
4	D11	36	D7, D8
5	Tr9	37	R12
6	Tr10	38	R11
7	R55	39	R40
8	VR4	40	C15
9	Tr12	41	R41
10	R15	42	VR2
11	D9	43	Tr7
12	R16	44	R10
13	Tr13	45	R13
14	VR5	46	R2
15	R6	47	Tr20
16	R59	48	R3
17	R26	49	R1
18	R25	50	Tr21
19	Tr24	51	R14
20	R29	52	Tr14
21	R28	53	Tr15
22	Tr25	54	R9
23	Tr19	55	R7
24	R4	56	R8
25	R5	57	R49
26	R27	58	R50
27	R58	59	VR1
28	Tr6	60	Tr17
29	D1, D2	61	D6
30	Tr1	62	VR3
31	Tr2	63	VR6
32	R42		

RZ67 Wiring diagram





1	D10	35	R6
2	R17	36	VR5
3	R18	37	Tr28
4	D11	38	R56
5	Tr9	39	R57
6	Tr10	40	R59
7	R55	41	R29
8	D13	42	R28
9	Tr27	43	Tr25
10	VR4	44	Tr19
11	Tr12	45	R5
12	R16	46	R4
13	R15	47	R58
14	D9	48	Tr20
15	Tr13	49	R10
16	Tr6	50	R13
17	D1, D2	51	R2
18	Tr1	52	R1
19	Tr2	53	R3
20	R42	54	Tr21
21	R43	55	R14
22	R44	56	Tr14
23	Tr3	57	Tr15
24	R12	58	R9
25	R11	59	VR6
26	R40	60	D6
27	C15	61	R7
28	R41	62	R8
29	VR2	63	R49
30	Tr7	64	R50
31	R26	65	VR1
32	R25	66	Tr17
33	R27	67	VR3
34	Tr24	68	D7, D8



69	C14	93	HD1
70	C13	94	C16
71	H-IC6293	95	R39
72	H-IC6290	96	Tr26
73	C8	97	R38
74	C10	98	C3
75	C11	99	R36
76	C2	100	Tr8
77	C4	101	R52
78	C12	102	R47
79	R34	103	R46
80	C5	104	R45
81	C17	105	R54
82	H-IC6292	106	Tr22
83	Tr6	107	C6
84	Tr5	108	A1, A2
85	Tr4	109	R37
86	R33	110	R51
87	D4, D5	111	R53
88	D3, D12	112	R32
89	Tr23	113	C1
90	Tr30	114	C7
91	Tr31	115	R35
92	R48		